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THE AUTONOMIC NERVOUS SYSTEM*

By Prof. W. R. Hess, M.D.

DIRECTOR OF THE PHYSIOLOGICAL DEPARTMENT OF THE UNIVERSITY OF ZÜRICH

The cells are the elements of all body functions, and to work properly they must be in a suitable environment. Definite organs and processes in the body provide these conditions—e.g., respiration, which brings oxygen and removes the carbon dioxide; digestion and assimilation, which supply nourishment to the tissues; excretion, which removes the waste products eliminated by the cell; heat regulation, which maintains that temperature which makes for optimal cell activity; and the circulatory system, which plays the rôle of mediator in all these processes. This system is the carrier of the respiratory gases, of nourishment, and of the products of excretion, and it plays an important rôle in the exchange of heat. The autonomic nervous system controls and directs all these processes in maintaining the medium required by the cell. In the performance of this task it accomplishes a multitude of single acts; it is a regulating mechanism which never pauses.

Organisation and Coördination of Functions

No process in an organism can correctly be interpreted and described as a *sum* of different manifestations. An organism is a unit, and all events taking place in it are orientated and regulated in accordance with the requirements of the whole organism.

For this reason we should still not understand the true nature of the autonomic nervous system, even if we knew all its details and all the influences which it can exercise. It is first of all necessary to realise the coördination, the order, from which arises the harmonious interplay of all vegetative organs. The methods of analysis have greatly broadened our knowledge, but we are so impressed by this progress that we are apt to do nothing else. Further analytical experiment can only accumulate an increasing number of differentiated facts. We forget that a compound can only be completely understood when its elements, ascertained by analysis, are again brought together. Resynthesis must follow analysis. To take a mechanical illustration: can anyone learn the true mechanism of a clock merely by taking it carefully apart? I do not believe so; he must also be able to replace all the parts intelligently, and must know how each works with the other to measure time. We must see the organism as a system of efficiently coördinated functions. This view agrees entirely with ideas expressed by the late Prof. E. H. Starling.

CIRCULATION AND RESPIRATION

During the last few years my attention has been devoted to the organisation of the circulatory and respiratory mechanisms, and I propose to take this work[1] as a basis for my remarks. Anyone at all grounded in physiology knows that an impulse from the sympathetic system generally causes vaso-constriction. This effect is especially marked on the arteries of the digestive tract, and it can also be observed in various other organs, but in some it is hardly recognisable—e.g., the brain. This diversity of reaction in different areas is further brought out by a consideration of the quantitative factor of the constriction: any intermediate degree may be recorded between the extremes of a marked constriction and an undemonstrable contraction. It even happens that the tone decreases under the action of the sympathetic and the artery distends. This vaso-dilatatory action can be demonstrated in various regions under favourable experimental conditions, and can also be primary and occur regularly. Exceptionally striking is the dilatatory effect on the coronary system, as Anrep[2] demonstrated by the Starling heart-lung method, with intact nerves. Such observations might lead to the conclusion that the action of the sympathetic on the arteries is not uniform. I should hesitate to say that its influence was governed by an intelligible law; the present view of the matter admits no such principle.

At this point I must mention a rule which applies whenever any attempt is made to deduce a law from physiological phenomena, including those of the circulation. When, for example, we note that a stimulus evokes vaso-constriction or vaso-dilatation, we must remember that any change in the diameter of a vessel has a definite effect on the blood flow. In looking for a law to explain the sympathetic effect, we should not consider anything intermediate, but only the end-result. It is not enough to notice local changes of flow. For instance, the inhibition of the circulation in the digestive organs is a result of a vaso-constriction in this part of the circulatory system. Since every change of flow in one region has its consequences in other regions and on the circulatory system as a whole, it is necessary to consider also that the blood pressure rises as a result of the increase in resistance in the splanchnic area. Arteries which show only a slight increase in tone or none at all undergo a passive dilatation, and the flow of blood to the corresponding organs is accordingly increased. This consequence is very important, and should be regarded as the determining factor in the entire procedure. It is thus possible to see how constriction here, passive widening there, and active dilatation elsewhere together constitute a common act, which produces a characteristic change in the blood distribution over the whole body. A number of phenomena which appear contradictory when considered separately are seen to be really synergistic when interpreted in terms of their mutual relationship.

Let us consider this example a little further. We should conclude, from our knowledge of the differences in the elasticity of arteries, that a general increase in sympathetic tone calls for a better blood-supply to the brain and heart. Both organs have the quality in common that their action cannot sink for even a few seconds below a definite minimum without endangering the individual. Consequently a plentiful supply of nourishment to these organs is of peculiar importance, especially when the organism is called upon to exert unusual psychical and physical activity. In the digestive organs, on the other hand, it is less important if the blood-supply is diminished over comparatively long periods. This difference between various organs in their dependence on their blood-supply, especially when the organism is in a state of activity, is the keystone to the interpretation of the action of the sympathetic on the circulatory system.

A critic may question whether this conclusion applies to the areas which I have not mentioned—

* Abstract of lectures delivered at University College, London, on May 12th and 13th, 1932.

e.g., to the blood-vessels in skeletal muscle and those of the pulmonary system. It is true that in both of these systems the sympathetic stimulus calls for a vaso-constriction, but quantitatively this constriction is much less than that in the splanchnic area or in the skin. This fact has emerged from the work of various authorities, whose observations, I am sorry to say, were not always clear, but very fortunately they have been supplemented by the results of research into the action of adrenaline on the blood-vessels of these regions; these results are interpreted according to Langley's law that adrenaline has the same action on any organ as the sympathetic. In order to clear up the question finally, our institute at Zürich has carried out during the last few years a series of experiments [3 4] by quantitatively exact methods to ascertain the effect of adrenaline. Our results show that in the pulmonary area both constriction and dilatation occur, the latter especially in the periphery. Isolated arteries from a striated muscle gave either a constriction or no reaction at all. Further, tests made with the object of determining the intensity of constriction showed that the increase in tone, in positive cases, is so small that the corresponding contraction is hardly measurable.

This fact is important in the light of the principle that an effect should not be considered by itself but in relationship to the living circulatory conditions. In particular, it is necessary to consider the increase in the blood pressure which takes place secondarily to the vaso-constriction in the splanchnic area and to the changes in the spleen and the venous system. If this is done it cannot be doubted that the rate of the blood flow through the lungs is increased partly by an active, but in the main by a passive, vaso-dilatation. In the skeletal muscle system the effect of a rise in blood pressure is about equivalent to the slight increase in the tone of the arteries, but the passive dilatation which takes place at the same time must also be considered. In all probability the vaso-dilatatory stimuli arising in the periphery exercise a deciding influence in this labile condition of a slight active constriction and a slight passive dilatation. These stimuli may be assumed to bear a close relationship to the increased metabolism of the functioning muscle.

This reference to the contribution of peripheral influences to the final regulation of the circulation takes us one step further, in a direction which is best appreciated by the study of a concrete example: impulses from the sympathetic are known to inhibit the activity of the digestive tract; the result is a removal of those peripheral stimuli within the tissue which might cause an activity-hyperæmia. Inhibition of function and constriction of vessels give the same end-result—i.e., they are coördinated processes. The counterpart of this example can be seen in organs—like the heart—which react to a sympathetic stimulus with an increase in function. With the increase in activity the sympathetic produces vaso-dilatation, and the increased metabolism which accompanies any heightened activity has the same effect.

"A REGULATOR FOR PREPAREDNESS"

We have come to a point where I recognise the possibility of being misunderstood. This possibility becomes a likelihood when I use different language and say, for example, that the blood-vessels of the heart under sympathetic action become dilated in order that the stimulated heart may receive an augmented supply of blood. Such a reference to finality suggests teleological speculation. Actually, however, we are not concerned with postulates or arguments based on teleology. Our path begins with the establishment of single facts and leads through the examination of the interdependence of functions to an understanding of the order in which the single phenomena occur, and only in this way can the problems of physiology be completely solved. Interpreted in this way, the special instance we have considered shows that all changes effected by an increase in sympathetic action in various organs are the expressions of a planned coöperation. For example, the bronchi distend in order to permit a greater exchange of gases by decreasing the resistance to their movement; this distension may be regarded as a synergistic action to accommodate the respiratory conditions to an increased circulation. I frankly admit that this sketch of function is still incomplete, and that a series of problems remain unsolved. This fact, however, far from inducing us to throw away what we have learned, should merely spur us to further research.

Up to a point we can already apply a functional formula to correlate the known facts about the sympathetic system. "The sympathetic system is closely related to the animal functions, in whose service it acts as a positive regulator for preparedness." The characteristic quality of this formula is that it is based on the preparation of the organism for activity. It represents an attempt to allow for a full use of the receptive powers and the successful realisation of all the creative motor expressions. We can, without material contradiction, introduce into it Cannon's [5] concept of the biological significance of the sympathetico-adrenaline system. An essential difference between Cannon's interpretation and this one is that he confines the sympathetic system within narrower limits. A further difference is that I lay more stress on the examination of the end-result in judging the order of function.

The next question is whether a common principle can be recognised by which to interpret the varied manifestations of the parasympathetic system. How, for instance, is inhibition of the heart to be regarded? At first sight a restriction of the blood-supply does not look like an expression of order. It suggests a negative influence, an encroachment upon the normal function bringing about a diminution in the activity of the organs to be supplied.

INHIBITION AS A POSITIVE FUNCTION

Let us apply one rule and judge the phenomenon of heart inhibition by all its consequences. Any decrease in the activity of the heart has its retro-action on the heart proper, for every reduction in energy expended means energy saved. In forced action, it is a preventive against strain and exhaustion; it allows the heart to rest and favours the reconstructive processes which Gaskell [6] has mentioned. This inhibitory process, therefore, also has its positive side, and when examining organising forces it is altogether fitting and proper to lay weight not on the negative but on the positive phase. This interpretation also gives us an insight into the influence of the parasympathetic on the digestive tract. Just as a penny saved is a penny earned, energy saved means that that energy need not be replaced. When we realise that on the one hand the parasympathetic restrains heart activity, while on the other it activates the digestive tract, then it becomes apparent that the two effects, which seem at first to be contradictory, are in reality synergistic.

There is a third organ in which the parasympathetic effects economy and protection—the eye. The para-

sympathetic, by contracting the iris, diminishes the light entering the eye and protects the photoreceptors against over-stimulation.

This agreement between all end-results of parasympathetic action, whether they are achieved by inhibiting one organ or by activating another, can hardly be pure chance, especially as the parasympathetic system can be seen filling a gap left by the sympathetic mechanism in the regulation of vegetative functions. For complete regulation it is not enough to ensure preparedness for function; it is just as important to ensure the preservation of the functioning powers of the organs. The parasympathetic preserves and economises energy, protects against strain, and restore activity. This is the "common" formula for all parasympathetic action.

VEGETATIVE INFLUENCE ON SENSE-ORGANS

It is a striking fact that in the eye the vegetative nervous system regulates an organ which qualitatively has nothing whatever in common with vegetative processes. The eye is specifically directed at the environment and so closely connected with consciousness that it provides an example of a typical animal function. This encroachment of the autonomic system into foreign territory suggests the question how far its regulatory influence spreads in other directions.

Its rôle in other sense-organs has recently been investigated experimentally in Foerster's [7] neurological clinic. He and his associates examined individuals in whom for therapeutic reasons the sympathetic had been sectioned on one side. They tested for pain and pressure sensitivity in the skin, and were able to determine that the sense-organs of the skin required a longer electrical stimulus than normal: the chronaxie had become lengthened. A very important addition to this result was contributed by von Brücke [8] and his co-workers, who showed recently that stimulation of the sympathetic in a decerebrated frog shortens the chronaxie. Achelis [9] and Altenburger and Rioch [10] have also contributed observations. These results may not completely elucidate the functions of the system, but they offer something positive towards answering my question. Considering the fundamental importance of the subject, it is especially gratifying that experimental research should have been conducted in this direction. Whatever its results may be, the interest to which it testifies should further the development of the physiology of the sense-organs.

VEGETATIVE INFLUENCE ON SKELETAL MUSCLE

A further question is whether or not the autonomic nervous system encroaches upon the skeletal muscle system. This problem has been much longer under discussion and has been approached from a point of view quite different from that which I have expressed. Twenty years ago, Boeke [11] stated that a striated muscle receives myelinated and non-myelinated nerve-fibres. This histological evidence was applied physiologically by de Boer,[12] who connected this double innervation with the two kinds of activity displayed by a muscle: the actual muscle contraction and the muscular tone. By severing the communicating rami between the spinal cord and the sympathetic trunk de Boer thought he had shown the relationship between muscle tone and the sympathetic. His results, however, were not definitely accepted by all workers in this field. Orbeli,[13] working on different lines, stimulated the sympathetic and motor-fibres simultaneously; he demonstrated an increased contraction, especially on tired muscles, and, in his later work with L. and M. Lapicque,[14] shortened a chronaxie. E. Frank [15] has suggested the possibility of a parasympathetic innervation of the skeletal muscles, reasoning from observations of tonus-like contractions brought on under definite conditions by drugs, such as acetylcholin, which act on the parasympathetic. Riesser,[16] myself, and others have seen skeletal muscles react directly to acetylcholin; Wachholder [17] confirmed this observation and added that those muscles in particular which in the living animal are physiologically called upon to undergo long periods of sustained contraction are especially sensitive to this hormone.

The present situation would not be correctly appreciated if we accepted these observations and concepts as the final solution of the problem of vegetative influence on skeletal muscle. This is a controversial field of physiological research, and observations contradict one another in various respects. This is not of importance for my purposes, for I only wish to show that the autonomic innervation of the skeletal musculature as a part of the animal system is actually engaging the interest of physiologists.

VEGETATIVE INFLUENCE ON SENSORI-MOTOR CENTRES

Let us now take another step forward and ask a third question which at first glance may seem a little daring, but which really follows logically from the answers to the first two. This question suggests an even wider field of action for the autonomic nervous system: Has the system a direct relationship with those centres which receive impulses from the sense-organs and which transmit impulses to the skeletal muscles? In somewhat different terms: do not the parts of the brain which serve the animal functions also receive regulating impulses from the autonomic nervous system?

The physiology of the central nervous system has hitherto been practically governed by the notion of a hierarchy, with the cortex as the great high priest. One is so accustomed to this conception that even to question it seems a breach of taste. It seems almost unthinkable that psychic faculties should be placed under the influence of the autonomic nervous system. Criticism, however, should not be determined by the emotions; it is constantly necessary to revise concepts which have been accepted as true. I am sure, therefore, that every unprejudiced physiologist will agree with me that this question is at least worthy of examination.

Before we can make a plan for experimental investigation, it is necessary to have a clear idea of the way in which we expect the influence to be exerted. We already know that the sympathetic system plays a decisive part in preparing the individual for activity, and that the parasympathetic system effects economy and repair; we want to find out how these two parts of the autonomic nervous system can possibly exert their characteristic influence in the psychic field. There is no need for any daring flights of imagination; we have a perfect instance in the change in our psychical and physical state that occurs daily. Nothing is more characteristic of the difference between sleep and waking than the difference of the organism's readiness for activity. This reflection offers a clue to the nature and mechanism of this primary biological phenomenon—a phenomenon which it is safe to say has never been fully understood, although many theories have been formed about it.

(To be concluded)

ADDISONIAN ANÆMIA

FOLLOWING GASTRECTOMY AND GASTRO-JEJUNOSTOMY

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To appreciate the potential ætiological significance of gastric operations on the development of Addisonian anæmia, a brief review of the growth of knowledge of this disease is necessary.

In 1870 Samuel Fenwick indicated the gastrogenic origin of Addisonian anæmia, demonstrating in a fatal case the "atrophy of the glandular structure of the stomach" and the absence of pepsin from acid extracts of scrapings of mucous membrane. Grawitz and Martius made further contributions to this aspect of the subject.

In a lecture on Achylia in 1909, Robert Hutchison stated:

"It was believed in fact that pernicious anæmia was brought about by the patient being unable to digest albuminous food, owing to the absence of the gastric juice . . . Undoubtedly, achylia may be present for many years without pernicious anæmia resulting, but it may well be proved that in some way, not yet understood, absence of hydrochloric acid and of gastric juice opens the way to pernicious anæmia, because we know, or at least many hold, that pernicious anæmia is due ultimately to some gastro-intestinal disorder."

Hurst has emphasised with lucidity and persistency the ætiological significance of achlorhydria in Addisonian anæmia and has demonstrated the constancy of the association. He states that "as Robert Hutchison first pointed out in 1900, there is generally a more or less long history of digestive disturbances, of the type commonly associated with achlorhydria, preceding the first symptoms of anæmia."

Panton, Maitland-Jones, and Riddoch found achylia in 33 out of 35 cases of pernicious anæmia. They concluded that "while the very frequent occurrence of achylia is noteworthy, and may of itself assist or even predispose towards the morbid process, we must look elsewhere for the essential ætiological factor." It was left to the brilliant researches of Castle and his associates to demonstrate that this factor was the absence of the hæmopoietic product formed by the interaction of a constituent of gastric secretion (intrinsic factor) other than hydrochloric acid, pepsin and rennin, and the protein of beef muscle (extrinsic factor). The therapeutic value of liver, originally demonstrated by Minot and Murphy, is explained by the absorption and storage in a modified form of Castle's "active principle." Sturgess and Isaacs, and later Wilkinson and Klein, have shown a specific hæmopoietic substance to be present in extracts of hog's stomach. Morris and collaborators claim that this principle or hormone is also present in normal gastric juice.

In the light of recent investigations, therefore, it would not be surprising to find that complete gastrectomy, removing as it does the intrinsic factor essential for the production of the hæmopoietic substance, should result in Addisonian anæmia. That it does so, Moynihan pointed out 20 years ago. It is not so easy to understand why partial gastrectomy or gastro-jejunostomy should have such a result, but a possible mechanism will be discussed later.

We here summarise 15 cases of Addisonian anæmia following gastric operation (taken from the literature), and add two others of Addisonian anæmia and subacute combined degeneration following partial gastrectomy. In one case the lesion was a gastric ulcer with syphilitic gastritis, and in the other a carcinoma of the stomach. The latter case was under the care of Prof. Arthur Ellis in 1925, and was briefly referred to by him in a discussion at that time. The symptoms of anæmia in these cases appeared 6 and 15 years respectively after operation.

Fifteen Cases from the Literature

Moynihan.—Profound anæmia following complete gastrectomy for carcinoma of stomach.

Man, aged 43, 2 years' dyspepsia. May, 1907, operation: leather-bottle carcinoma, complete gastrectomy; pathological report—atrophic type of cancer, probably of low grade malignancy. March, 1910, pale, breathless, losing weight, signs of profound anæmia. Died December, 1910; autopsy no malignant disease, very profound anæmia of tissues; no reference to bone-marrow, no blood count. As autopsy failed to reveal carcinoma or ulceration, or any cause of death other than profound anæmia, the sum total of evidence may be interpreted as indicating an Addisonian type of anæmia.

Hartman.—Blood changes in a gastrectomised patient (carcinomatous ulcer) simulating those found in pernicious anæmia.

Man of 58 years, with 20 years' history of dypepsia; test-meal showed no free HCl, total acid 4. Radiology indeterminate. Blood count normal, erythrocytes 5,520,000, hæmoglobin 80. August, 1917, operation: movable carcinomatous ulcer, total gastrectomy; pathological report—carcinoma, no glandular involvement. January, 1918, fairly well, diarrhœa 1 to 3 loose motions a day. March, 1919, getting weak, regurgitation of food and bile; controlled to some extent by salt water. May, 1919, paræsthesias, smooth tongue, pale; erythrocytes 2,000,000, hæmoglobin 55, colour-index 1·2, leucocytes 7000; no nucleated red cells; radiological examination negative; increase of bilirubin in duodenal contents. January, 1920, worse, erythrocytes 1,420,000, hæmoglobin 48, colour-index 1·2. June, 1920, abdominal pain and vomiting of large quantities of bile.

Campbell and Conybeare.—Pernicious anæmia following gastro-jejunostomy for simple ulcer.

"It is interesting to find that one patient in the series died of Addison's anæmia in Guy's Hospital eight years after gastro-jejunostomy for an ulcer of the lesser curvature. Unfortunately no test-meals were done in this case either before or after operation."

(The authors are sometimes quoted as having had two such cases, but in a personal communication it is indicated that this is apparently a mistake.)

Willcox.—Pernicious anæmia following gastro-enterostomy for duodenal ulcer.

Female, aged 52; 1920, gastro-enterostomy for duodenal ulcer; 1921, operation for ? adhesions; 1922, symptoms of anæmia, blood examination suggested pernicious anæmia. September, 1923, erythrocytes 2,000,000, hæmoglobin 45, colour-index 1·1, nucleated red cells; there were recurring attacks of diarrhœa, lasting from three to five days, associated with slight pyrexia 99° to 100° F., and followed by slight icteric tinging of the conjunctiva; the stools were not definitely fatty in character, but loose and offensive; blood transfusion resulted in temporary improvement, but death followed in September, 1924. (These notes were kindly supplied by Sir William Willcox.)

Delore.—Pernicious anæmia (? aplastic) following gastro-pylorectomy and gastro-enterostomy for non-malignant gastric ulcer.

Female, aged 43; 1919, dyspepsia; 1920, gastric ulcer on greater curvature, gastro-pylorectomy with removal of neighbouring third of the stomach, gastro-enterostomy; after operation patient could only manage small and frequent meals (7 or 8 a day) and had to eat very slowly to avoid vomiting. In 1923 painless frequent vomiting and biliousness occurred in spite of these precautions and persisted; no diarrhœa; test-meal showed an absence of hydrochloric acid; radiography showed the barium meal passing rapidly

into the stomach so that one could not distinguish clearly the form of the remainder of the stomach; no occult blood in the stools. In 1925 dyspnœa, weakness, amenorrhœa, œdema of legs; spleen just palpable; erythrocytes 682,000, hæmoglobin 17, colour-index 1·24, no megaloblasts, leucocytes 6500, polymorphonuclear neutrophils 66, lymphocytes 25. This is referred to as an aplastic type of anæmia. Death in spite of blood transfusion; necropsy showed no trace of neoplasm or ulceration; no mention is made of the bone-marrow; there were no signs of syphilis although the Bordet-Wassermann reaction was positive in the blood during life.

Breitenbach.—Pernicious anæmia following complete gastrectomy for non-malignant gastric ulcer.

Dyspepsia in 1921. In 1922 extensive gastric ulcer found at operation, complete gastrectomy, much blood vomited after the operation. Six years later able to work but blood count showed severe primary anæmia; erythrocytes 1,800,000, hæmoglobin 39, colour-index 1·08, no nucleated red cells. This case was originally described by Heilmann, but the development of the pernicious anæmia was observed later by Breitenbach. Heilmann investigated the patient one and a half years after operation and found a defective absorption of fat. Six years after operation, however, Breitenbach found a normal absorption and utilisation of all food. He suggests the development of a compensatory mechanism to account for this apparent return to normality.

Dennig.—Pernicious anæmia with subacute combined degeneration following complete gastrectomy for non-malignant gastric ulcer.

Male, aged 41. Symptoms of gastric ulcer in 1916. In 1918, operation; large gastric ulcer perforated into pancreas, total resection of stomach; well except for vomiting of large quantities of food. In 1925, operation for hæmatemesis. In 1927, paræsthesia, ataxia; glazed tongue, increased urobilin in urine; absent knee-jerks, hyperæsthesia; erythrocytes 1,800,000, hæmoglobin 40, colour-index 1·4; arsenic and blood transfusion produced no improvement; erythrocytes 1,400,000, hæmoglobin 35, colour-index 1·25, megaloblasts, normoblasts; liver therapy for one week, erythrocytes 2,300,000, hæmoglobin 60. The patient then unfortunately developed bronchopneumonia and died; necropsy confirmed the diagnosis of pernicious anæmia; fine brown pigmentation was present in the liver; in the bone-marrow were isolated megalocytes, many nucleated red cells, and marrow giant cells; section of the spinal cord showed degeneration of the posterior columns.

Hochrein.—(*a*) Gastrectomy for carcinoma of stomach.

Male, aged 55; 1920, gastrectomy; 1928, anæmia, malaise; glossitis, lemon-yellow complexion, spleen palpable, ankle- and knee-jerks diminished, Wassermann reaction negative; erythrocytes 1,560,000, hæmoglobin 54, colour-index 1·7, megaloblasts; adequate response to liver.

(*b*) Gastrectomy for gastric and duodenal ulcers.

Woman, aged 56; operation 1920; 1929, weakness, sore tongue; no occult blood in stools; erythrocytes 3,420,000, hæmoglobin 43, colour-index 0·7. The hæmatological picture was thought to resemble a secondary anæmia, but the rapid response to liver caused the author to change his original opinion and term it a primary anæmia.

Morawitz.—"Agastric anæmia" following extensive gastrectomy for carcinoma.

(*a*) Male, aged 56; 1901, lues. In 1920, extensive stomach resection for carcinoma. In 1928, symptoms of anæmia; erythrocytes 1,560,000, hæmoglobin 54, colour-index 1·7, megalocytes, 1 megaloblast; achylia and no response to histamine; no occult blood in stools, radiology negative; rapid response to liver treatment, erythrocytes, 4,000,000, hæmoglobin 80. Six months later (May, 1929) relapse in spite of continued liver therapy; erythrocytes 2,100,000, hæmoglobin 36, colour-index, 0·85, no nucleated red cells; radiography negative; blood transfusions, arsenic, and liver failed to produce any marked benefit. In January, 1930, however, the erythrocytes were 4,700,000, hæmoglobin 47 per cent., colour-index 0·51. This case is interpreted by the author as showing a transition from a primary to a secondary type of anæmia, the latter being refractory to liver therapy; Wassermann reaction weakly positive.

(*b*) Male, aged 69. In 1923, extensive gastrectomy for carcinoma of stomach. In 1929, abdominal pain, pallor, dyspnœa, weakness; hæmorrhage from gums, hæmaturia; erythrocytes 880,000, hæmoglobin 19, colour-index 1·1, leucocytes 1300, polymorphonuclear neutrophils 48 per cent., lymphocytes 52 per cent., thrombocytes 50,000, no nucleated red cells, bleeding time over ten minutes; reticulocytes 8 per cent.; test-meal showed achylia, radiology negative, no occult blood in stools; a blood transfusion of 300 c.cm., followed by liver therapy resulted in great improvement; there was a marked reticulocyte response of 200 per cent.; erythrocytes 4,290,000, hæmoglobin 82 per cent., colour-index 0·9, thrombocytes over 100,000, bleeding time three minutes. The author considers the initial blood count picture to be that of aplastic anæmia, associated with a hæmorrhagic diathesis. The response is not in keeping with this conception.

A third case is an abbreviated report of Hochrein's case. (*Vide supra.*)

Glanville and Hurst.—Pernicious anæmia following gastro-jejunostomy for gastric ulcer.

Male, aged 34, three years' history suggestive of gastric ulcer. May, 1927, a test-meal gave "a low normal curve with no gastric delay and no blood or mucus"; a large gastric ulcer was found at operation and gastro-jejunostomy performed. November, 1927, diarrhœa, five or six bulky stools a day, otherwise well. November, 1929, dyspnœa, weakness. March, 1930, pains and numbness of legs, lemon-yellow complexion, glossitis, œdema of ankle, no occult blood in the stools; test-meal showed achlorhydria, ankle-jerks absent, but no other neurological signs, "the X rays showed that the stomach emptied freely by the stoma but not at an excessive rate"; erythrocytes 1,680,000, hæmoglobin 44, colour-index 1·28, megaloblasts; adequate response to liver therapy.

In a personal communication the authors inform us that the diarrhœa has persisted. We consider this a significant feature.

Poole and Foster.—Chronic syphilitic gastritis with total gastrectomy and pernicious anæmia.

A woman, 39 years old, first seen in October, 1925, one year's history of dyspepsia, epigastric discomfort, nausea, and vomiting; clinical examination negative, blood count normal, free HCl 0, total acidity 4, radiography showed a small stomach with an hour-glass deformity, Wassermann reaction positive; antisyphilitic treatment with temporary benefit only. April, 1926, at operation, no gross masses or ulceration; the entire stomach drawn into folds by what seemed to be a contraction of the tissues beneath the serosa, total gastrectomy; pathological diagnosis—gastric granuloma, probably syphilitic. Two years after operation the patient reported that she had no indigestion, but could only take small feeds at frequent intervals. April, 1929, weakness, anorexia, lemon-yellow complexion, smooth tongue, tip of spleen palpable, œdema ankle, no neurological changes; extreme anæmia 500,000 red cells, 20 per cent. hæmoglobin, no mention of nucleated red cells; rapid response to intravenous liver extract, Wassermann reaction still positive.

Fairley and Kilner.—Pernicious anæmia following gastro-jejunostomy for non-malignant pyloric obstruction and ultimate development of gastro-jejuno-colic fistula.

Male, aged 42. March, 1926, gastro-jejunostomy for pyloric obstruction; not completely relieved of dyspeptic symptoms. October, 1929, diarrhœa, watery light brown frothy stools up to 15 times a day; smooth tongue; treated as sprue with milk diet, calcium, and parathyroid; no better, and progressive loss of weight; blood count 3,600,000 erythrocytes, 65 per cent. hæmoglobin, colour-index 0·9, anisocytosis and poikilocytosis, but no megaloblasts or normoblasts; van den Bergh reactions curve 120 N/10 HCl being attained; Wassermann reaction negative; radiological examination showed rapid emptying of stomach; fæcal fat 33·9 per cent., of which 74 per cent. were split; following liver therapy blood picture became normal, 4,900,000 erythrocytes, 85 per cent. hæmoglobin, and the stools also became nearly normal except for high fat content. In May, 1930, fæcal vomiting occurred; a gastro-jejuno-colic ulcer and fistula were diagnosed and confirmed at operation; subsequent progress satisfactory. The blood count was normal six months after operation although no liver was being taken.

Of two other cases described by the same authors, one was malignant, and the other a mild, somewhat typical magaloblastic anæmia.

Scheidel.—Pernicious anæmia following gastrectomy for gastric ulcer.

Male, aged 50. In 1922 an extensive gastric resection for large penetrating ulcer on the small curvature near

the cardia. October, 1927, indefinite dyspeptic symptoms, radiological examination showing rapid emptying of remnant of the stomach (ten minutes) and overfilling of small intestine, suspicion of jejunal ulcer; achylia; blood count 3,700,000 erythrocytes, 85 per cent. hæmoglobin; Wassermann reaction negative. April, 1928, lassitude, dyspnœa on exertion, sore glazed tongue; yellow complexion; no occult blood in fæces, urobilin in urine; blood picture typical of pernicious anæmia, 630,000 erythrocytes, 22 per cent. hæmoglobin, colour-index 1·8, leucocytes 3800, megaloblasts and normoblasts; the left ankle- and knee-jerks were diminished. After six weeks' liver treatment there was considerable improvement—3,000,000 erythrocytes, 65 per cent. hæmoglobin. Continued treatment as an out-patient.

Two Cases of Addisonian Anæmia following Gastrectomy

CASE 1.—Addisonian anæmia, with neurological changes, following gastrectomy for gastric ulcer, and syphilitic gastritis.

A female, aged 41, first came under observation in October, 1922, when aged 32, with symptoms of gastric ulcer.

She was quite well until October, 1920, when she had an attack of dyspepsia lasting one month. At this time the symptoms were more suggestive of gastritis—loss of appetite, slight nausea, feeling of fullness about half an hour after meals with frequent vomiting. In January, 1921, she had an attack of acute gastro-enteritis, with diarrhœa and vomiting, of two weeks' duration. She was then well until September, 1921, when severe epigastric pain occurred half to one hour after meals, relieved by eructations, by alkalis, by food, and by vomiting. The latter occurred when the pain had reached its maximum intensity, and was associated with slight nausea but no retching. The pain was sufficiently severe to prevent sleep and to awake her. These symptoms continued with hardly any remission, and two months prior to October, 1922, became even worse, the patient being confined to bed. The pain was very severe, causing her to double up. The vomiting now occurred after every meal, the food being returned first, and then thick bile-stained fluid. Her bowels were open regular until August, 1922, since when aperients were necessary. There was no alcoholic history.

On examination (October, 1922) the patient was seen to be rather thin but with a good colour and clean moist tongue. Concomitant divergent strabismus. The teeth were good. The heart and lungs were normal. The abdomen showed no tenderness or rigidity; the liver and spleen were not enlarged. No signs of any organic disease of the nervous system.

A fractional meal test showed a complete absence of free hydrochloric acid and a total acidity never more than 25.

A barium meal and radiography showed a definite narrowing of the pars pylorica, no ptosis, very poor tone of the fundus—absence of peristalsis—duodenum normal. The radiological evidence appeared to indicate a neoplastic condition rather than a simple ulceration.

OPERATION

In November, 1922, Mr. James Sherren performed a partial gastrectomy. The notes of the operation state: "Right upper paramedian incision, right rectus retracted, abdomen opened; hard mass surrounding pyloric end of the stomach 1½" above pylorus; subpyloric glands, and glands on lesser curvature enlarged and hard—specimen sent for section; great omentum ligatured off close to transverse colon and divided—lesser curvature of stomach also freed. Duodenum clamped, separated from stomach by actual cautery, divided ends cauterised; stump of duodenum invaginated and embedded; stomach removed well above 'carcinomatous' area, but on greater curvature there was great thickening of submucosa, extending up to site of division; anastomosis performed between anterior edge of stomach and first coil of jejunum; incision closed in layers."

Histological report.—"Chronic progressive peptic ulcer of stomach; great subacute inflammatory infiltration of mucosa and fibrosis of submucosa of stomach extending to limit of incision."

SUBSEQUENT PROGRESS

Convalescence from the operation proceeded smoothly except for some diarrhœa and occasional vomiting. Four weeks after the operation, however, both the diarrhœa and the vomiting became very troublesome. The diarrhœa was as frequent as five times a day and was sometimes associated with incontinence of fæces. The patient also vomited large quantities of bile several times a day, without any special time relationship to food. There was no pain, but a transient epigastric burning preceded the vomiting, and disappeared after it.

She was readmitted to hospital in February, 1923, for investigation. The diarrhœa, however, ceased just prior to this, the bowels now being open once a day. The vomiting was not so frequent. A barium meal and radiogram at this time showed: "Fundal position of stomach quite high; gastro-jejunostomy stoma quite patent; rapid passage through stomach; stomach empties within half an hour; apparently successful gastro-jejunostomy." (Dr. G. E. Vilvandré.)

The patient was again seen in November, 1927. She was then quite well except for the vomiting of bile, which had persisted ever since the operation but, after the first few months, only three or four times a week. Her appetite was excellent, she was free from pain or discomfort, and her general health was good. There were no abnormal physical signs on examination. The vomiting of bile was apparently unrelated to food. The patient would sometimes make very persistent efforts to retain a threatened vomit. She alleged that when successful in these efforts for more than two or three days she began to feel sleepy and irritable, and the yellow colour of her skin and eyes would be commented upon by her friends. A copious vomit of bile would end this discomfort, and she would be bright and energetic once more.

In August, 1928, the patient felt some numbness and tingling of the left foot, and shortly afterwards of the right. These abnormal sensations spread upwards as far as the waist level. Occasionally she was unsteady on her legs and tended to sway from side to side. There was slight dyspnœa and some palpitation on exertion. In September, 1928, her tongue was sore, and some blisters were present. This condition only lasted a week. She was, however, not seen until October, 1928, when she was admitted to hospital quite unable to walk.

On examination there was an obvious lemon-yellow tint of the skin; the tongue was clean and smooth. The heart, lungs, and abdomen showed no abnormality, the spleen not being palpable; the fundi and cranial nerves were normal, as were also the upper limbs; the abdominal reflexes could not be elicited; there was slight spasticity and weakness of the lower limbs; the knee-jerks and ankle-jerks were greatly increased, but no ankle-clonus was elicited; there was a definite bilateral extensor plantar response; there was a small area of paræsthesia on the plantar surface of the right toe where light touch felt like a pinprick; otherwise sensation to pin and cotton-wool appeared to be normal; postural sensibility was present, but there was a complete lack of appreciation of tuning-fork vibration on the left leg, and that on the right leg was grossly impaired. Rombergism was tested for, when the patient was strong enough to stand, and was present, the patient falling forward on closing her eyes.

TABLE I.—*Blood Counts*

Date.	Erythrocytes (million).	Hæmoglobin.	Colour-index.	Leucocytes.	Polymuclear neutrophils.	Eosinophiles.	Small lymphocytes.	Large lymphocytes.	Large hyaline.
3/10/28	2·1	40	0·95	6,600	54·0	6·5	34·0	2·0	3·5
23/10/28	2·2	40	0·91	6,320	66·0	3·0	24·0	2·0	5·0
25/10/28	Liver extract commenced.								
5/11/28	2·9	40	0·7	5,280	71·5	7·0	18·5	0·5	2·0
10/11/28	2·3	45	0·98	7,080	65·5	1·0	28·5	2·0	3·0
19/11/28	2·9	55	0·94	6,000	55·0	4·5	35·0	2·0	2·5
27/11/28	Extract stopped. Raw liver substituted.								
29/11/28	2·9	55	0·95	4,600	51·0	18·5	18·5	4·0	7·5
5/12/28	2·8	55	0·98	5,480	56·0	11·0	26·0	1·0	5·5
13/12/28	3·4	66	0·96	4,800	62·5	7·5	17·5	4·5	7·5
2/1/29	3·6	70	0·97	7,000	60·5	6·0	22·5	3·0	8·0
13/1/29	3·7	73	0·98	7,200	56·0	11·5	15·5	3·0	24·0
11/2/29	3·9	70	0·90	6,200	47·5	15·0	20·5	3·0	—
30/5/29	5·5	80	0·73	18,480	38·0	30·5	28·0	3·5	0
12/6/29	4·3	85	0·86	14,000	51·5	28·5	14·0	2·0	4·0
13/9/29	4·0	75	0·95	14,720	44·5	28·0	19·5	0·5	6·5
31/10/29	4·2	80	0·95	6,200	47·0	29·5	17·0	0·5	6·0

The blood count resembled that of pernicious anæmia, the colour-index being 0·95 (Table I). No nucleated red cells were present, however. Anisocytosis and poikilocytosis was observed. The direct van den Bergh reaction was negative, the indirect within normal limits 0·2 mg. bilirubin per 100 c.cm.

A test-meal showed a complete absence of free HCl and a low total acidity. No fluid could be returned after 45 minutes.

Liver extract was commenced on Oct. 25th. The clinical response, gain in strength, and well-being was excellent, but the hæmatological response tardy. On Nov. 27th raw liver was substituted, with a resulting progressive increase

in the number of red blood-cells and hæmoglobin percentage (see Table). It is of interest to note the increasing eosinophilia following liver therapy.

On Dec. 27th, in the course of routine tests, a Wassermann reaction was carried out and found to be positive. There was nothing in the clinical history to suggest the possibility of luetic infection. Three doses of 0·45 g. N.A.B. were, however, given at weekly intervals. The Wassermann reaction remained positive.

The serological indication of lues, and the giving of intravenous arsenic, complicate the interpretation of the neurological changes. The time factor is of some importance. Liver treatment was commenced on Nov. 27th, 1928. Subjective improvement as regards abnormal sensations and motor power were evident, and the patient able to walk before any injections of arsenic were commenced. The neurological signs persisted for some months after liver and after the arsenic. The patient left hospital on Jan. 26th, 1929, and was not seen again until October of that year. She then stated that she felt very well, and had continued on the liver treatment. She could walk long distances without any distress or dyspnœa. The chronic bile vomiting had completely ceased in March, 1929. There were no subjective sensations in the hands, but the big toe and middle toe of both feet felt as if there were a thick rope round them. There was also a sensation of a band round the left calf.

On examination the patient looked very well and had a good rosy complexion. Her tongue was somewhat smooth and glazed. The heart, lungs, and abdomen were normal. The fundi and cranial nerves normal; upper limbs normal; abdominal reflexes not obtained; there was now no spasticity or weakness of the lower limbs, the knee-jerks were moderately brisk and equal, the plantar responses were equivocal; sensations of pinprick and cotton-wool normal, postural sensibility and vibratory sense normal (the latter was grossly defective when in hospital previously); Rombergism negative. A blood count was approximately normal.

The *menstrual history* in this case is of interest. Menstruation was quite regular before operation, but there was complete amenorrhœa for three years afterwards, then scanty menstruation for a further year, and subsequently the re-establishment of normal menstruation. Anæmia cannot be cited as the cause of the amenorrhœa, as there was no evidence of anæmia during the three years that followed the operation, nor was there any amenorrhœa during the period of severe anæmia. The possibility of the amenorrhœa being a direct result of the gastrectomy is raised, and further evidence on this point is needed.

HISTOLOGICAL REPORT

In view of the positive Wassermann reaction, we sought the opinion of Prof. H. M. Turnbull on the microscopical sections of the stomach. He reported:—

"*S.D.* 2145/22. I have examined the sections taken from this pyloric portion of stomach (8 cm. along lesser curve, 12 cm. along greater). There was: (1) A small ulcer close to the duodenum. (2) A slightly sunken band, 3 cm. broad, which completely encircled the stomach 3 cm. from the duodenum. (3) Two other small ulcers nearer the cardiac end. (4) A nodular area (5 × 0·5 cm.) at the cardiac limit of incision. Portions were taken for microscopic examination from 1, 2, 3, and 4, and from two lymphatic glands.

"The sections of stomach show much infiltration with lymphocytes, plasma cells, and eosinophil leucocytes, extensive endarteritis, and a few multinuclear giant cells. These are all characteristic of syphilitic inflammation, but they are so frequently found in chronic progressive peptic ulceration of the stomach that it is impossible to accept them as proof of syphilis. This stomach shows, however, other features that are most unusual in chronic progressive peptic ulceration. The ulcers, where present, are very shallow, being at their deepest apparently confined to the mucosa. Their bases are formed by a very deep layer of densely fibrotic mucosa. This thickening of the mucosa is present in all sections whether the mucosa is ulcerated or not, and is everywhere associated with endarteritis. I think, therefore, that in this stomach there is probably a syphilitic inflammation of the mucosa and submucosa, with occasional shallow ulceration. The glands show a considerable amount of infiltration with plasma cells, but not enough to increase the evidence of syphilis."

SUMMARY OF CASE 1

A woman developed dyspeptic symptoms at the age of 30. Two years later achlorhydria was found, and a radiological picture suggestive of carcinoma ventriculi. At operation a large gastric ulcer, with surrounding infiltration suggestive of neoplasm, was encountered, and a partial gastrectomy performed. Microscopical evidence revealed a simple non-malignant gastric ulcer with coexisting gastritis. The patient was then troubled with diarrhœa and frequent bile vomiting for three months, after which the former disappeared and the latter became less troublesome. The patient then enjoyed good health until six years later, when abnormal subjective sensations led to further investigation. Achlorhydria, pernicious anæmia, and subacute combined degeneration were found to be present. The latter diagnosis was not certain in view of the positive Wassermann reaction, but the improvement before arsenic therapy, and the objective neurological improvement in the absence of any change in the luetic serological reaction, suggests its probability. The clinical neurological findings would have been accepted unquestionably as those of subacute combined degeneration in any case of pernicious anæmia, uncomplicated by a positive Wassermann reaction. The antiluetic treatment in this case was at first tentative and curtailed, only three injections of N.A.B. being given.

The hæmatological response to liver therapy was excellent and characteristic of pernicious anæmia. The question of the relationship of the anæmia to the partial gastrectomy is perhaps a difficult one in this case, as there was also a pre-existing achlorhydria, the latter probably the result of the extensive gastritis. Cases of pernicious anæmia following chronic gastritis have been described (Hurst), and it is conceivable that even in the absence of a gastrectomy this patient would have developed pernicious anæmia. This does not alter the actual fact that pernicious anæmia developed six years after a gastrectomy, although it must be admitted that that portion of the stomach that was left behind had given no pre-operative evidence of being able to secrete free hydrochloric acid.

In view of the histological findings, the pre-operative achlorhydria, the indefinite pre-operative symptomatology, and the positive Wassermann reaction, it would be reasonable to conclude that syphilis was the basis of the gastric pathology. The case, therefore, bears some resemblance to that described by Poole and Foster, and it is interesting to note that in the latter case pre-operative antiluetic treatment produced no amelioration of the dyspepsia, total gastrectomy being considered a necessary procedure.

THE SECOND CASE

Addisonian anæmia and subacute combined degeneration after gastrectomy for carcinoma ventriculi.

A ploughman, aged 41, was quite well until three months before his first admission to the London Hospital (April 23rd, 1909). He then complained of loss of appetite, weakness, flatulence, occasional vomiting (about once a week). Pain was not a marked feature but sometimes occurred in the upper abdomen after a heavy meal.

On examination the patient was seen to be a somewhat wasted man. His tongue was clean. The abdomen was not distended and moved well on respiration. An elongated curved sausage-shaped tumour was felt to descend below the left costal margin during inspiration. It was somewhat tender but moved freely on respiration. The liver was not enlarged. There were no supraclavicular glands palpable. Rectal examination was negative. Ewald test-meal on April 27th showed an absence of free HCl and a low total acidity of 27.

OPERATION

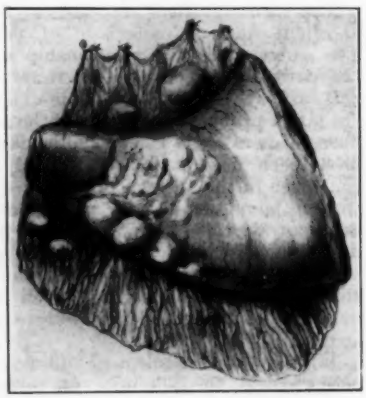
Operation by Mr. Hugh Lett, May 1st, 1909. Large mass of growth found in stomach near pylorus but chiefly along greater curvature. Glands in omentum and gastro-hepatic omentum considerably enlarged, but those in the gastro-hepatic omentum did not pass up as far as the œsophagus. The cœliac glands were apparently free. Gastro-hepatic omentum separated, ligatured in portions and divided, the coronary and pyloric arteries being tied and the common bile-duct and portal vein being pushed aside.

Great omentum treated in a similar manner. First part of the duodenum just beyond pylorus clamped with two pairs of clamps, and a similar pair applied to the stomach in a straight line with the right-hand border of the œsophagus. Stomach divided between these clamps, and included portions removed. Opening of stomach sutured with two rows of silk sutures, first passing through all coats and second through serous only. Open portion of duodenum treated in a similar manner. Posterior gastro-jejunostomy done between jejunum 4 in. beyond the duodenum and the remaining portion of the fundus of the stomach. Abdominal wall sewn up, through-and-through sutures of silkworm gut and then in layers with catgut.

PORTION OF STOMACH REMOVED

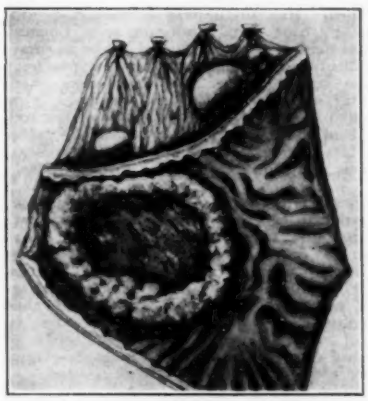
Mr. A. J. Walton described the specimen as follows: It consisted (Figs. 1 and 2) of the whole portion of the stomach to the right of a line drawn vertically downwards from the right margin of the œsophagus. It included the pylorus and a small portion of the first part of the duodenum. From side to side it measured 7 in., and from above downwards 5 in. at the fundal end and 1 in. at the pyloric end. On the greater curvature near the pylorus was a large irregular hard mass extending on the anterior and posterior surfaces. The lower part of this formed two round well-defined hard areas, which might have been adherent, and infiltrated glands or two bosses of growth which had broken through the muscular coat. The portion of the greater curvature below this was irregular and thickened, the omentum here being raised and infiltrated. The anterior surface of the stomach wall in this portion was hard and thickened, the surface being covered with small nodular masses.

FIG. 1 (Case 2)



Portion of stomach removed at operation.

FIG. 2 (Case 2)



Interior view of the excised portion.

In the excised portion of the gastro-hepatic omentum were a chain of enlarged and hard glands, extending nearly up to the œsophageal opening.

The pyloric opening would just admit the little finger. On the inner surface of the stomach was seen a large irregular ulcer. This was situated chiefly on the lesser curvature but extended in its whole length well on to the anterior and posterior walls, at the pylorus itself almost completely encircling the lumen of the viscus. The central portion was deeply ulcerated and showed a rough granular and somewhat friable surface. The edge, which was from ½–¾ in. wide, was much raised, irregular, granular, and friable, forming a fungating mass of growth which in many places overhung both the ulcerated surface and the normal mucous membrane. A section showed the raised edge to be formed of a mass of granular grey-white material which completely replaced the muscular coat and involved the peritoneal surfaces. The glands of section showed white granular masses replacing the whole of the gland tissue.

Microscopical sections showed a solid carcinoma of the pyloric region of the stomach; solid processes with little interstitial tissue in which, however, there was great infiltration, reaching serosa. Sections of a gastric gland showed inflammation (not neoplasm) with proliferation of cells of sinuses, centres very distinct.

FURTHER PROGRESS

The patient made an uninterrupted recovery and left hospital on May 30th.

On March 4th, 1910, he was again seen and was in good health with no signs of recurrence of carcinoma.

The patient remained quite well for 15 years. He was readmitted to the London Hospital in January, 1925, under Prof. Ellis (who made reference to the case at the Proceedings of the Royal Society of Medicine of that year). For one year before admission the patient had experienced a sensation of coldness and numbness in the hands and feet. This had been progressive, and for several months he had been unsteady on his feet. There was also loss of appetite, occasional vomiting, loss of weight, and increasing weakness. One month before admission he had a transient attack of diarrhœa which kept him in bed for several days.

On examination the patient was found to be extremely wasted, with myopathic irritability of the pectoral muscles. There was marked anæmia of the conjunctivæ and a yellowish tint of the skin. Most of the teeth had been removed, but a few carious stumps remained. The tongue was glazed, devoid of papillæ and red. The fundi and cranial nerves were normal. Slight ataxia in upper limbs and marked ataxia in the lower limbs. Postural sensibility was slightly impaired in the upper limbs, especially ulnar fingers. There was gross loss of postural sensibility in lower limbs. Vibratory sense was slightly impaired in the upper limbs and completely lost in the lower limbs. There was no localised wasting of the limbs or trunk. The biceps jerks were sluggish L > R; the knee-jerks were also sluggish R > L; the right supinator jerk was just present, the left absent. The knee-jerks and ankle-jerks were absent on both sides. There was a bilateral Babinski response. The upper abdominal reflexes were present and equal, the lower being sluggish. There was no anæsthesia or analgesia. There were some moist sounds in the lungs but the remainder of the examination was essentially negative.

Investigations.—A fractional test-meal showed a complete absence of free hydrochloric acid and a low total acidity. Radiography of the stomach was unsuccessfully attempted owing to the inability of the patient to stand. A blood count showed: 2,050,000 erythrocytes, 40 per cent. hæmoglobin, 0·98 colour-index, 2000 leucocytes; differential count: 19·5 per cent. polynuclear neutrophils, 2·5 per cent. eosinophils, 74 per cent. small lymphocytes, 0·5 per cent. large hyaline cells, 0·5 per cent. coarsely granular basophilic cells. Examination of stained blood: 1 normoblast seen in counting 200 white cells; poikilocytosis, anisocytosis; no megaloblasts. Subsequent blood count gave similar results, except that the percentage of polymorphonuclear neutrophils were not so diminished—e.g., 40 per cent., 60 per cent.

The patient was treated with dilute hydrochloric acid without any obvious improvement. He left the hospital on March 6th, 1925, and died a few months later.

SUMMARY

A partial gastrectomy for carcinoma of the stomach was performed on a male aged 41. He remained well for 15 years and then developed signs of pernicious anæmia and subacute combined degeneration. Achlorhydria was present. There was no evidence of recurrence of carcinoma. The patient died a few months after leaving hospital.

Summary of Evidence

From Table II. it will be seen that five cases of Addisonian anæmia occurred after total gastrectomy, eight after partial gastrectomy, and four after gastro-jejunostomy, one of the latter being associated with a gastro-jejuno-colic fistula. In six cases the lesion was carcinoma, in seven gastric ulcer, in one duodenal ulcer, in one both a gastric and a duodenal ulcer, in one a syphilitic gastritis, and in one a gastric ulcer with syphilitic gastritis. In no case was there any evidence of malignancy at the time the anæmia

developed. Subacute combined degeneration was present in four cases.

The mere occurrence of paræsthesia without objective signs is not considered evidence of subacute combined degeneration.

The period between the operation and the development of the anæmia varied between two and fifteen years, with an average of six years.

CHARACTERISTICS OF THE ANÆMIA

In all but one case the colour-index was high, greater than 0·9. In this one case the colour-index was only 0·7 and the author (Hochrein) was at first inclined to regard anæmia as of secondary type, "megaloblasts are probably present at some period of the disorder, even though they may not be found at one or more examinations." When tested, the direct van den Bergh reaction was within normal limits.

IS THE GASTRECTOMY OR THE GASTRO-JEJUNOSTOMY THE CAUSE OF THE ADDISONIAN ANÆMIA?

It has been seen that there is much experimental evidence that tends to explain why a primary anæmia may result from the complete removal of gastric tissue. The reason for its occurrence after gastro-jejunostomy and partial gastrectomy is less obvious. In these cases it is probable that hydrochloric acid and ferments are secreted by the remainder of the

TABLE II.—SHOWING RESULTS OF OPERATION IN SEVENTEEN CASES OF ADDISONIAN ANÆMIA

Authors.	Date.	Age (at onset of anæmia).	Lesion.	Operation.	Latent period (years).	Erythrocytes (millions).	Colour-index.	Megaloblasts.	Subacute combined degeneration.	Comment.
Moynihan ..	1911	43	Carcinoma stomach.	Total gastrectomy.	3	—	—	9	No.	No malignant recurrence at necropsy.
Hartman ..	1921	58	Carcinomatous gastric ulcer.	,,	2	2·0	1·2	0	No.	Regurgitation of food and bile. Diarrhœa.
Campbell and Conybeare	1922	—	Gastric ulcer.	Gastro-jejunostomy.	8	—	—	—	No.	No details of this case are available.
Willcox ..	1924	52	Duodenal ulcer.	,,	2	2·0	1·1	0	No.	Personal communication described in this paper, 1931. Diarrhœa.
Ellis	1925 (1932)	56	Carcinoma stomach.	Gastrectomy.	15	2·0	0·98	0	Yes.	Mentioned in 1925. Described in this paper, 1931.
Delore ..	1928	43	Gastric ulcer.	Gastro-pylorectomy. Gastro-jejunostomy.	5	0·6	1·24	0	No.	The suggestion of aplastic anæmia is made by Delore. Vomiting of food and bile. Rapid rate of emptying of stomach.
Breitenbach ..	1929	57	,, ,,	Total gastrectomy.	6	1·8	1·08	0	No.	Initial description by Heilmann. No nucleated red cells.
Dennig ..	1929	41	,, ,,	,,	9	1·8	1·4	Yes.	Yes.	Response to liver therapy but fatal broncho-pneumonia. Vomiting.
Hochrein ..	1929	55	Carcinoma stomach.	Gastrectomy.	8	1·5	1·7	Yes.	No.	Response to liver therapy.
Hochrein ..	1929	56	Gastric ulcer; duodenal ulcer.	,,	9	3·4	0·7	No.	No.	At first thought to be a secondary anæmia but rapid response to liver.
Morawitz ..	1930	56	Carcinoma stomach.	,,	8	1·5	1·7	Yes.	No.	At first response to liver. Later poor response, and transition to secondary type anæmia.
Morawitz ..	1930	69	,, ,,	,,	6	0·8	1·1	No.	No.	Author considers this to be aplastic anæmia, but rapid response to liver.
Glanvill and Hurst	1930	34	Gastric ulcer.	Gastro-jejunostomy.	2	1·6	1·28	Yes.	Yes.	Absent ankle-jerks, no sensory loss, numbness. Diarrhœa. Response to liver therapy.
Scheidel ..	1930	50	,, ,,	Gastrectomy.	5	0·6	1·8	Yes.	No.	Response to liver therapy. Left ankle- and knee-jerk diminished. Rapid emptying of stomach.
Poole and Foster	1931	39	Syphilitic gastritis.	Total gastrectomy.	3	0·5	2·0	No.	No.	Response to liver therapy.
Fairley and Kilner	1931	42	Non-malignant pyloric obstruction.	Gastro-jejunostomy.*	3	3·6	0·9	No.	No.	Response to liver therapy. Diarrhœa.
Rowlands and Levy Simpson	1932	38	Gastric ulcer. Syphilitic gastritis.	Gastrectomy.	6	2·1	0·95	No.	Yes.	Response to liver therapy.

* Developed gastro-jejuno-colic fistula.

although the rapid response to liver therapy suggested its primary nature. Panton and collaborators found that in 15 out of 117 cases of Addisonian anæmia the colour-index was at one time or another below 0·7, and in three cases, in which the diagnosis was confirmed at autopsy, the colour-index was persistently below 0·7 during the whole period of observation. In Morawitz's first case, the Addisonian type of anæmia, which at first responded to liver therapy, later changed to a secondary type of anæmia which resisted all therapeutics. In two other cases (Delore, Morawitz) the blood count was suggestive of aplastic anæmia, but in the latter of these there was a rapid return to normal following liver therapy.

It is rather noteworthy that megaloblasts were present in only 5 out of 17 cases. In some cases megaloblasts were consistently absent in spite of repeated examinations. Panton and collaborators state that in a series of 117 cases of pernicious anæmia, megaloblasts were present in 92. They conclude that

gastric tissue, although no free acid may be demonstrable owing to neutralisation by duodenal contents. Castle states that the interaction of the gastric juice and beef muscle may take place in acid and neutral solutions; but should this be retarded in alkaline solution it would constitute a possible explanation of the anæmia in cases of gastro-jejunostomy. Castle, however, found that beef incubated with duodenal contents gave good results, but not if free from gastric contents. The time factor of interaction may be important, and the rapid emptying of the stomach in some cases of partial gastrectomy and gastro-jejunostomy be of significance. Another important factor is the occurrence of post-operative chronic diarrhœa, the mechanism of the anæmia production in these cases probably resembling that of idiopathic steatorrhœa. Another ætiological possibility is the development of post-operative gastritis, a condition which on the continent is thought to be a not infrequent sequel of

gastro-jejunostomy and incomplete gastrectomy (Kalk).

Knott showed that in 90 per cent. of people with normal free hydrochloric acid the resting duodenal contents were sterile; but with achlorhydria the duodenal contents were teemimg with bacteria. He postulated that resulting hæmolysis may cause primary anæmia, as can be produced in rabbits by feeding hæmolytic organisms by mouth. This theory might explain the primary anæmia that occurs with experimental (Seyderhelm) and clinical (Meulengracht) stenosis of the small gut or with non-obstructive carcinomata of the large gut (Eisen). It is possible that such organisms are allowed to thrive after a gastro-jejunostomy or gastrectomy. The immediate effect of liver extract, especially when given intravenously, however, does not appear to support the hæmolytic toxin theory, and Castle observes that the intestinal flora remain unchanged after the beneficial effect of liver. He states that the quantitative and immediate response to liver suggests a dietary deficiency disease.

The frequency or infrequency of occurrence of post-operative Addisonian anæmia is of importance. Total gastrectomy is rare, Miyagi only being able to trace 34 cases up to 1927. He was not concerned with the incidence of anæmia, but Furney and Reinhoff in 1929 found, in reviewing the literature of nine cases of total gastrectomy, primary anæmia only developed in two (Hartman, Moynihan). Lake investigated 51 cases of partial gastrectomy and found the blood counts to be approximately normal in all. There was certainly no evidence of primary anæmia. Achlorhydria was present in all but one case. Gordon Taylor investigated the results of 52 cases of gastrectomy. He found that mild anæmia was present in 8 and severe anæmia in 15. It is stated that the anæmia did not resemble the Addisonian type. Morley investigated 42 cases of partial gastrectomy. He concluded that those undergoing the Schoemaker operation were almost entirely free from anæmia, whereas with the Polya operation 12 out of 21 developed anæmia. The latter operation removes a much greater proportion of the acid-forming area of the stomach than the former. The anæmia was always of the secondary type and there was no suggestion of Addisonian anæmia. Cosin and Hurst describe a case of severe secondary anæmia following gastro-jejunostomy for duodenal ulcer. Balfour had a patient with very profound secondary anæmia after extensive gastric resection. Schneider and Carey had two cases of partial gastrectomy with "blood pictures characteristic of secondary anæmia" and the symptoms and signs of cord involvement.

The sum total of the evidence indicates that Addisonian anæmia is extremely rare after gastrectomy or gastro-jejunostomy. Secondary anæmia in partial gastrectomy, according to Taylor and Morley, is not uncommon. The observation of the latter that its development is dependent upon the amount of gastric tissue removed is of great significance. In view of the apparent rarity of megaloblasts in post-operative Addisonian anæmia, it is possible that some of the so-called secondary anæmias following operation might be more akin to the Addisonian variety and might respond to liver therapy. This latter point should be investigated in every case of post-operative anæmia, even in the presence of a low colour-index. The objective evidence of subacute combined degeneration in the two cases of Schneider and Carey with apparent post-operative secondary anæmia is of interest from this point of view. The occurrence of organic signs of a cord lesion is exceptional in secondary anæmia (Hurst and Bell), and it is interesting to note that Collier, who observed secondary anæmia in several cases of subacute combined degeneration, decided after some years' observation that the ultimate blood picture was nearly always that of Addisonian anæmia. Witts found no definite signs of subacute combined degeneration in 50 cases of simple achlorhydric anæmia.

Another important factor in considering the investigations of post-operative anæmia is the long latent period that usually occurs, the average in our series being six years and the longest 15 years. This also should be remembered in considering Mann's negative hæmatological findings in dogs four years after total gastrectomy, although in a personal communication Mann informs us that the period has now reached six years without any signs of anæmia. Ivy, Morgan, and Farrell found that secondary anæmia developed in gastrectomised dogs, if there was a further physiological strain, such as pregnancy, on the hæmopoietic system.

It is not necessary to postulate that every case of gastrectomy will develop anæmia, as it is well recognised that many cases of idiopathic achlorhydria never develop anæmia (Faber, Hurst). Further, the post-operative occurrence, in some cases of secondary, and in others of primary anæmia, is not necessarily a bar to accepting the ætiological possibilities of the operation.

The long latent period after operation is also only comparable to similar periods observed with idiopathic achlorhydria. Thus Hurst records intervals of ten years, Riley of ten years, and Davis and Vanderhof of six years, in which the patient was known to have achlorhydria before developing Addisonian anæmia. The latter authors also collected from the literature 32 cases of primary anæmia in which the achlorhydria was known for varying periods from three months up to 25 years beforehand. It is, however, noteworthy that the cessation of liver therapy in Addisonian anæmia usually manifests its effects within a few months or less.

Post-operative primary anæmia is not altogether characteristic of Addisonian anæmia, in that the indirect van den Bergh reaction is usually within normal limits, and megaloblasts occur less frequently. It is more akin to the anæmia of idiopathic steatorrhœa and to the tropical anæmias. The effect of marmite in post-operative anæmias may confirm this view.

The very important case described by Fairley and Kilner appears to prove directly that gastro-jejunocolic fistula may cause a primary anæmia, in that the anæmia disappeared after the fistula was repaired and the stomach, jejunum, and colon completely separated. The blood picture was normal six months after operation, no liver being taken during this period, and Dr. Hamilton Fairley informs us that the patient has recently reported persistent good health. Free hydrochloric acid was present in this case. Hartfall mentions two cases of primary anæmia, ten years after gastro-jejunostomy in which undoing the gastro-jejunostomy did not abolish the anæmia. Achlorhydria, however, continued to be present in these cases. (We have not included these two cases in this series as the data have not yet been published.)

We conclude that the sum total of evidence suggests that the occurrence of primary anæmia after gastric operations is not a mere coincidence.

Summary

(1) The development of our knowledge of the ætiology of Addisonian anæmia is outlined.

(2) An abbreviated account of 15 cases, from the literature, of Addisonian anæmia following gastrectomy or gastro-jejunostomy is given, and their special features tabulated.

(3) To these are added two cases of Addisonian anæmia with subacute combined degeneration following partial gastrectomy for simple ulcer and carcinoma respectively.

(4) Evidence of the association between the operation and the subsequent anæmia is discussed.

We have much pleasure in acknowledging our indebtedness to Dr. P. N. Panton, director of the Hale Clinical Laboratories; to Prof. A. W. M. Ellis and Mr. H. Lett for permission to utilise and publish the notes of their case; to Mr. A. J. Walton for his excellent diagrams and description of the pathological specimen (Case 2) made at the time of operation; to Prof. H. M. Turnbull for the histological reports; and to Sir William Willcox for kindly communicating the details of his own case.

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A HOSPITAL ON VIEW.—The new Christie Cancer Hospital and Holt Radium Institute at Withington, Manchester, were thrown open to visitors for three days before the patients and staff were transferred there. Nearly 6000 persons visited them in two hours on one day.

DUODENAL ULCERATION IN INFANTS

AN ACCOUNT OF TWO CASES

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DUODENAL ulceration in young infants, though rare, has been reported from time to time. In all about 200 cases have been collected. The two following cases are reported from the Hospital for Sick Children.

THE FIRST CASE

Male, aged 10 weeks at death. Only child. Born three weeks prematurely and weighed 6 lb. at the twelfth day. The gain in weight was unsatisfactory, and on admission at the age of five weeks the child weighed only 7 lb. The bowels were always constipated and the stools of normal colour. From the second week the mother noticed that he appeared to be in pain after food, becoming pale and rolling his eyes. Flatulence was always a trouble and the child cried a great deal. Feeding was by the breast supplemented with cow's milk. Two days before admission vomiting began.

On admission he was a thin and wasted baby with weak visible peristalsis. During his stay in hospital vomiting was at first absent and then became increasingly present; during the last two weeks it was forcible in character and contained altered blood. The weight remained stationary at 7 lb. until a week before death when it began to fall; this despite a high calorie feed, frequent salines (intraperitoneal and subcutaneous), and one blood transfusion. Radiography of a barium meal showed no delay in emptying of the stomach; there was no evidence of the presence of an ulcer. The stools remained normal until the last two weeks when they became loose.

At first pyloric stenosis was suspected, but the absence of constipation and the negative physical findings excluded it. Duodenal ulcer was suspected on account of the wasting, pain, and hæmatemesis.

An *autopsy* was performed 15 hours after death and the following notes were made: A thin, wasted baby. The cranial and thoracic contents were normal. The stomach was normal in size and not hypertrophied; it contained some altered blood. The pylorus was normal. In the second part of the duodenum a shallow, oval ulcer was found. It measured 5 × 3 mm. and its long axis was longitudinally placed. The ulceration involved only the mucosa. There were no post-mortem changes in the duodenum. The rest of the intestine contained a quantity of dark red blood and showed a uniform congestion. The liver was very small (73 g.) but was normal in other respects. The spleen, kidneys, and other viscera presented no abnormalities.

Microscopical examination.—A section was made through the centre of the ulcer. Histologically the area was denuded of mucosa, the bed being formed of submucosa and muscle infiltrated with leucocytes. A few small thrombosed vessels were to be seen. The histological measurement of the ulcer corresponded with the measurements made macroscopically.

THE SECOND CASE

Male, aged 2 weeks at death. Sixth child; three healthy, and two died at two and three months respectively with persistent vomiting. This child was born at full term weighing 5 lb. For six days he was breast-fed and then began to vomit, continuing to do so until admission on the seventh day.

On admission he was a thin and pale infant with blue palms and soles. He vomited all food, bile and blood being present in the vomit on the day of admission. No peristalsis was visible and the pylorus could not be felt. A radiogram (barium meal) showed delay in the passage of food through the pylorus. The stools were greenish. Two blackish areas appeared on the groin and neck which were thought to be evidence of early gangrene.

The child died two days after admission. A clinical diagnosis of duodenal ulcer was made.

An *autopsy* was performed two hours after death and the following was recorded. The body was that of a premature infant. There were blackish, discoloured areas on the buttocks and thighs. The heart and cranial contents were normal. Both lungs contained dark red infarcts. There was blood-stained fluid in the right pleural cavity. The

stomach and pylorus were normal. The first and second parts of the duodenum were injected and the third part quite normal in appearance. Between the injected mucosa of the first and second parts and the pale mucosa of the third part a sharp line of demarcation was seen. At the junction of the first and second parts an oval, punched-out ulcer measuring 2 × 4 mm. was found. This ulcer went through all three coats of the duodenum. The duodenal contents did not seem to have escaped (despite the fact that there were no adhesions), but on manipulation some of the duodenal fluid was seen to pass through the ulcer bed. The rest of the intestinal tract was normal. The liver was very fatty and the other viscera normal.

Microscopical examination.—The site of the ulceration showed loss of continuity in all three coats of the duodenum. On either side the mucosa and submucosal vessels were intensely congested.

DISCUSSION

From the large collection of cases which have been made by Helmholtz [1 28] in 1909, Moynihan [2] in 1910, Holt [3] in 1913, Veeder [4] in 1914, Theile [5] in 1919, Paterson [6] in 1922, and the great number of individual cases [7-13] recorded from 1864 onwards, it would seem that ulceration in the duodenum is more common than is usually supposed in the first year of life. The reported cases present clinical histories similar to those of our own two cases: in young infants, usually below the age of 5 months, there is vomiting and a failure to thrive; and those who survive the first few weeks show symptoms of pain after food. Hæmorrhage, usually melæna, is manifest in about half these infants; Holt [3] found melæna present in 28 out of 60. According to Armitage [14] diarrhœa is present also in about half the cases.

The clinical picture presented—namely, failure to thrive, vomiting, and pain after food—may raise the question of pyloric stenosis. Veeder [4] emphasises this point. Clearly if there is any spasm of the pylorus from the presence of the ulcer projectile vomiting may be present, a large stomach, delay in emptying, and weak peristalsis. Nixon and Fraser [13] record a case in which pyloric stenosis was considered; in Case 1 of this paper this differential diagnosis had also to be made. A normal gastric emptying, if not prevented by spasm, may be of assistance in the diagnosis.

The diagnosis of duodenal ulcer in infants cannot be made with any certainty. Helmholtz [1] says that it is only possible after hæmorrhage or perforation has occurred. But we should bear in mind that melæna of the new-born is present from other causes than ulceration; indeed, Moynihan [2] states that of the 1 in 1000 live births showing melæna, in only a very small number does this result from duodenal ulceration; on the other hand, Widerhofer [15] stresses the fact that ulceration may be present without any bleeding (in direct opposition to the early teaching of Landau [26]). It is further evident, as Widerhofer [15] says, that melæna which is due to ulceration more commonly comes from the stomach than the duodenum. When frank bleeding is absent it is still possible that occult blood may be present in the stools, and Veeder [4] advocates a search for this in all marasmic infants. If his recommendation be accepted it is necessary to avoid the use of alcohol as a stimulant, for it is our experience that altered blood is commonly to be found at autopsy in the stomachs of infants who have received brandy by mouth. Although it has been suggested by Veeder [4] that bleeding could be detected if carefully searched for in all cases of duodenal ulceration, there is every reason to believe that the diagnosis must be made in about half the infants in the absence of melæna. In such, the clinical picture of atrophy, vomiting, pain after food, and diarrhœa may be the only guide. Furthermore, it is probable that some of the infants give no symptoms at all; Holt [3] states that 30 of his 90 cases gave no symptoms, and in 16 Helmholtz [1] found only 3 who had symptoms. We are inclined to agree with Theile [5] when he says that duodenal ulceration should be considered in all atrophic infants, especially in the first few months of life. In view of the difficulty and uncertainty in the diagnosis, some mention should be made of Holt's [3] procedure in doubtful cases, in which by means of a catheter he withdrew duodenal content for the detection of blood.

The prognosis in these infants is grave. In 1880, Widerhofer stated that 50–60 per cent. of infants with melæna die, and that death is inevitable in all such infants if an ulcer is present. The mortality of melæna neonatorum has been greatly reduced by modern treatment, and we know that ulcers can heal from the account of Palmer's [16] case of a boy, 6 months of age, in whom, after symptoms had been present since birth, an operation for pyloroplasty, with subsequent gastro-jejunostomy, was performed; and from Arlsberg's [17] case of a girl of 2 years in whom laparotomy for sudden bleeding revealed an old duodenal ulcer near the pylorus with adhesions to the liver. One of the five infants recorded by Veeder [4] recovered after massive hæmorrhage from the bowel, and another recovery was recorded by Helmholtz.[1] The infants die for the most part of gradual inanition, but at least in a few instances perforation may occur; in all, twelve instances of this are recorded by Harrison,[18] Berland,[19] Adrance,[20] Finny,[21] Helmholtz,[1] Griffith,[22] Schmidt,[23] Somerford,[24] Entz,[25] and Nuzum.[10] Collapse following profuse hæmorrhage may cause death (Armitage,[14] Veeder [4]).

The pathogenesis of this condition is still uncertain. In 1874, Landau [26] first postulated the hypothesis, which has since been given much support, that thrombosis of the umbilical vein causes emboli to enter the general circulation and infarction to occur in a duodenal vessel, with subsequent digestion of the mucosa overlying the infarct. We would suggest that in view of the absence of any other indications of generalised spread of emboli the infarction of a duodenal vessel is very unlikely. Moreover it is difficult to imagine an embolus from such a source reaching the arterial system after passage through lung and perhaps through liver as well. In a second view attention is called to the fact that the ulceration, which may be single or multiple, has its commonest site on the posterior wall between the pylorus and the ampulla of Vater (Moynihan,[2] Veeder [4]). The suggestion is made that the posterior wall is the most dependent part in the bedridden, marasmic infant, and hence most likely to be digested by supernatant fluid; it is probable that the part of the duodenum above the ampulla is squirted from the pylorus with acid juice capable, perhaps, of causing such digestion. Other writers lay emphasis upon the wasted condition of the infants who are found post mortem to have these ulcers. They suppose the marasmus to be the cause rather than the result of the ulceration, and suggest that a failure of nutrition is the primary factor. Thus Holt [3] comments on the age-incidence (only 5 out of 65 of his collected cases were above 5 months); the earlier months he supposes the richest in chronic nutritional disease when severe wasting (decomposition) is most likely to occur. Finkelstein [27] supports this view, saying that ulceration is so commonly found "bei dekomponierten Kindern." Helmholtz [28] says that in 16 cases of "Pädatrophie" coming to autopsy he found ulceration in no less than 8. There seems, indeed, little doubt that a period of weakness, wasting, and anæmia precedes the onset in the majority of infants, but we cannot be certain that this is causal. The last hypothesis

concerns the supraduodenal artery, described by Wilkie, of Edinburgh, which in wasted infants may be obliterated by the downward pull of the viscera leading to necrosis in the part of the duodenum it supplies—namely, the upper part of the posterior wall.[12] This mechanism was suspected in Case 2 of this paper. Possibly Case 2 illustrates another point,—namely, the familial incidence of duodenal ulcer in infancy. Rogers [12] has recorded the condition in two successive infants in the same family. In conclusion we should like to refer to the fact that most of the recorded cases have been discovered at autopsy, and that it must remain a little uncertain to what extent they may have been due to post-mortem changes. In the stomach and œsophagus post-mortem digestions are common; in contrast the duodenum is peculiarly free from them. This evidence encourages us to attribute to these ulcers an ante-mortem origin.

SUMMARY

(1) Two infants, 10 weeks and 2 weeks respectively, died of duodenal ulceration. (2) The clinical picture resembled that of other cases (circa 200) recorded in the literature—namely, failure to thrive, vomiting, and pain after food. Melæna or hæmatemesis seem to occur in about half the cases, and diarrhœa also in about half. The infants are always very wasted and they are rarely above 5 months of age. (3) The diagnosis is one of great difficulty during life; 160 or more of the 200 recorded cases have been recognised in the post-mortem room. There is reason to suppose that the diagnosis should be made more frequently, and it is suggested that it should be considered in all infants below the age of 5 months who are declining in a state of atrophy. (4) The prognosis is very poor; death usually results from inanition, occasionally by perforation (eleven recorded instances) or by massive hæmorrhage. (5) The pathology of the condition is that of a single or multiple ulceration, always lying on the posterior wall of the duodenum between the pylorus and the ampulla of Vater. (6) The pathogenesis is in doubt; various hypotheses are considered.

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AUTOGENOUS URINARY PROTEOSE IN RHEUMATOID ARTHRITIS

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Barber and Oriel,[1] in 1930, pointed out that in eczema of internal origin, and other allergic diseases, a substance could be isolated from the patient's own urine, which substance when injected intradermally gave a skin reaction similar to the injection of an antigen into an allergic patient who had been sensitised to that antigen. They further suggested that by means of this substance, which appeared to be complex in composition and in the nature of a proteose, the patient could be desensitised. They have since stated [2] that in allergic cases a specific reaction is evoked by the intradermal injection of the patient's own "proteose." Criticisms have not been lacking, but these appear to hinge mainly on the question of the cutaneous and dermal reactions evoked by the proteose, and the absolute specificity of the test. Freeman [3] is of the opinion that there is no specificity, and has shown graphically that no difference can be detected in the skin reactions of allergic patients injected with autogenous proteose and normal controls injected with the same proteose. Murray Lyon, Percival, and Stewart [4] take the same view.

Of recent years the relationship between allergy and rheumatism has been often stressed, and the position is reviewed by Poynton and Schlesinger [5] chiefly with regard to acute rheumatism. They base such evidence as exists for this relationship on analogy, experimental evidence, and clinical observation. Barber [1] considers that in rheumatoid arthritis, while the primary antigen may be a streptococcus or other organism, the arthritis itself may be an allergic reaction towards a secondary antigen derived from the action of the organism on the patient's tissue. The same observer, in treating cases of psoriasis arthropatica with proteose, found that:

> "In these cases, without exception, a striking feature has been the susceptibility of the affected joints, even to minute doses. An injection of 0·1 c.cm. of a one in a million dilution" (of proteose) "is apt to provoke a sharp focal reaction in the joints with a general but transitory feeling of malaise. The results of treatment in psoriasis arthropatica, and in rheumatoid arthritis uncomplicated by psoriasis, have been very encouraging, but the effect has been more noticeable on the arthritis than on the psoriasis."

In another communication Barber [2] again stressed this point: "in certain cases of rheumatoid arthritis it was necessary to be extremely careful in regard to dosage, for a slightly excessive dose would produce in a few hours an acute flare up in the affected joints." Douthwaite [6] stated that all true cases of active rheumatoid arthritis "have a urinary output of proteose which is capable of causing a flare up of joint manifestations if introduced subcutaneously even in infinitesimal quantities." Oriel, in a personal communication stated:

> "In rheumatoid arthritis we find the patients very sensitive to the injections, especially the acute cases, and if you call the first solution one in a thousand, I should advise commencing treatment with about 0·05 c.cm. of the 1/10 million dilution . . ."

We would here remark that these observations in cases of rheumatoid arthritis are in striking

contrast to the results we have obtained, for, as will be apparent later, over half of our cases of rheumatoid arthritis gave no reaction at all on the injection of 1 c.cm. of the strongest dilution—i.e., 1 in 1000—and that in addition *none* of our cases gave a positive intradermal reaction.

SKIN REACTIONS

Pearson,[7] working on proteose in asthma, has defined a positive skin test as a strong large wheal with pseudopodia and definite persistent erythema. This definition is in keeping with that laid down by Rackeman,[8] Coca,[9] Bray,[10] and other authorities on allergy; throughout our investigations our criterion for a positive skin reaction has been a definite blanched wheal (as apart from the injection bleb caused by the intradermal injection) and a definite persistent zone of erythema.

While we do not wish to consider in this paper any conditions other than rheumatoid arthritis, we would mention that we have had, using the same technique as described below, some markedly positive intradermal reactions in a limited number of cases suffering from the eczema-asthma-hay-fever syndrome.

We agree with Freeman [3] that the injection of the proteose appears to produce a "wheal," but if an ink ring be made round the injection site it will be seen that the convexity of the injection bleb is increased, in other words any increase that takes place is at right angles to the skin. An exactly similar phenomenon may occur in the control injection bleb. Slight and transient erythema was present in many of our cases, but there was little or no difference between the proteose erythema and control erythema in the same patient.

It appeared to us that to compare tests on the skins of patients with rheumatoid arthritis, whose skins are subject to trophic changes, with tests on the skins of healthy normals was not a fair criterion. We therefore compared the reactions on the two arms of the same patient, selecting as far as possible exactly corresponding sites on the flexor surface of the two forearms, avoiding too close proximity to the antecubital fossæ.

One arm was tested with proteose plus alkali plus buffer solution, and the other arm with alkali plus buffer solution in a corresponding strength. A fine gauge needle and a 1 c.cm. syringe graduated in hundredths were employed. Exactly 0·05 c.cm. was injected intradermally. Throughout the series of cases autogenous proteose was used. The initial injection consisted of 1 in 10 million dilutions of the proteose and control solution respectively. If no reaction appeared within ten minutes, a ten times stronger dilution was then injected, and so on until the 1 in 1000 ("stock") solution was reached.

After experience of several cases and consistently negative results, it became our custom in order to save time to inject all five dilutions from 1 in 10 millions to 1 in 1000, commencing with the weakest dilution, of both proteose and control alternately, and observe the results. Close observation was kept on the injection sites for a matter of 15 minutes and thereafter at intervals up to 24 hours. Focal or general reactions that might fairly be attributed to the injections of proteose were watched for, but with one exception none appeared. This exception was a delayed reaction as described by Lyon, Percival, and Stewart.[4] These observers, it should be noted, regard the initial skin reaction "merely as a slight exaggeration of the phenomenon frequently observed to follow any type of intradermal injection." Oriel,[11] however, appears to rely on the initial skin reaction, and, as pointed out by Freeman [11] and Burgess,[12] all claims for the specificity of proteose have been on this basis.

In all, we have tested the reactions to autogenous proteose in 50 hospital in-patients suffering from rheumatoid arthritis. All these cases were selected, in that they were clinically and radiographically true rheumatoid, and "active" in that they had pain, swelling of joints, and low suspension stability of the erythrocytes; the majority had, in addition, intermittent low-grade pyrexia. It is obvious, therefore, that all these patients' proteoses were isolated during an apparently active phase of the disease.

PREPARATION AND PROPERTIES OF THE "PROTEOSE"

The "proteose" dilutions were made by Oriel's technique as follows.

The 24-hours' output of urine collected in a Winchester quart bottle containing a few drops of chloroform was rendered acid to Congo red by addition of 25 per cent. sulphuric acid (1 to 3 c.cm. usually necessary), filtered through a close filter, 400 c.cm. filtrate placed in a separating funnel with 100 c.cm. ether and well shaken for some minutes. On standing, the ether layer either showed a gelatinous lower stratum or became semi-solid throughout. After running off the urine the ethereal layer was run into a stoppered measuring cylinder, an equal volume of alcohol added, and the mixture allowed to stand until the white flaky precipitate which invariably formed had subsided. From the twenty-sixth case onwards 10 to 15 minutes only were allowed for this subsidence, in order to avoid prolonged contact of the precipitate with the alcoholic liquid. (An experiment with a case, however, in which half was allowed 10 minutes contact with alcohol and the other half 24 hours, showed no difference as regards skin tests in the "proteose" dilutions made from each.)

The supernatant liquid was pipetted off, the remainder transferred to a centrifuge cell, and after centrifuging, washing with distilled water, and again centrifuging, the precipitate was treated in the cell with 0·5 to 1·0 c.cm. N/10 NaOH, made up to 10 c.cm. with buffered phenolated saline of pH 7·6, and again centrifuged. The clear liquid was transferred to a vaccine bottle and regarded as No. 1 (stock) dilution of nominal strength 1 in 1000. From this successive tenfold dilutions 2, 3, 4, 5 were made with phenolated buffered saline, the weakest, No. 5, being 1 in 10 millions. In all such cases dilutions were made from the readily soluble portion of the precipitate.

Previous workers have made determinations of the nitrogen content of the stock dilution of so-called "proteose" and the ratio it bears to the total nitrogen of the urine in various stages of allergic disease, but these determinations seem to have been made on the stock solution itself.

Murray Lyon, Percival, and Stewart,[4] who employ the dried precipitate for making their dilutions, state only the total N in the proteose precipitate and its ratio to the total N in the urine, and do not give the percentage of N in the dried precipitate, which, if the precipitate is anything like a pure proteid, should approximate to the usual 100 ÷ 6·25 content.

To throw light on this point, a separate portion of the urine was set aside in 12 successive cases, and the washed alcohol precipitate, obtained as above stated, was collected on a weighed dried filter, dried at 100° C., weighed, and the nitrogen percentage determined by Kjeldahl's process (Table I.). In 10 of the 12 cases this nitrogen percentage is not consistent with the precipitate containing even 50 per cent. of a pure proteid. The ratios of precipitate nitrogen to total nitrogen are of the same order as many of those given by other observers, but there is no case among the 12 of the very high ratios observed in acute attacks of allergic disease.

The heat test for proteoses was applied to the urine of each patient. About 2 in. of perfectly bright filtered urine was placed in each of four test-tubes, the fourth being a control. One drop 33 per cent. acetic acid was added to No. 1 tube, two drops to No. 2, and nothing to the third. The three tubes and a thermometer were immersed in a bath of distilled water and gradually heated. Except in the third tube no cloudiness appeared in any case until the temperature rose above 50° C.—cloudiness appearing between 50° and 60° was registered as positive for proteoses, and its degree estimated by comparison with the control tube of unheated urine by illuminating the four tubes in a row against a black background as in Dreyer's agglutination technique. Whenever the third tube alone showed turbidity, one drop of acetic acid at once removed it, as it was then due to a trace of phosphate precipitated by the effect of heat on nearly neutral urine. On further heating the three tubes from 70° to 100° perfect clearing up of the proteose cloudiness was never seen, presumably because a trace of

coagulable albumin not detectable by any less delicate mode of observation was in many instances present in addition to the proteose. The results obtained were as follows:—

No. 1 tube with one drop of 33 per cent. acetic acid: 26 per cent. positive, 74 per cent. negative.

No. 2 tube with two drops of 33 per cent. acetic acid: 48 per cent. positive, 52 per cent. negative.

Notes on the alcohol precipitate.—All urines gave an alcohol precipitate from the ether extract of 400 c.cm. of urine. In only one case was this very slight; in another case it measured 10 c.cm. in the graduated cylinder, but it generally ranged from 1 to 5 c.cm.

All the stock dilutions examined gave at least a trace of reaction with the general tests for proteins tried—viz., Millon, Esbach, salicyl sulphonic acid, Spiegler—but this proves nothing as to proteose. It should be noted that this is in contradistinction to the negative results obtained by Haviland Minchin's [14] tests on the proteose obtained from patients suffering from idiopathic epilepsy.

Many urines which, when filtered, were perfectly clear, gave no cloud with salicyl sulphonic acid, either immediately or after standing half an hour, and would consequently be returned negative for albumin for clinical purposes, nevertheless showed cloud after standing for some hours.

Some of the alcohol precipitates, when only 10 to 15 minutes is given for subsidence, readily dissolved after centrifuging and washing in 0·5 to 1 c.cm. N/10 NaOH, and may be presumed to be fairly homogeneous. Others, especially after some hours are allowed for subsidence, are, on centrifuging, manifestly not homogeneous; frequently there is a non-flocculent, heavier, sometimes pigmented layer at the bottom, and the flocculent and non-flocculent portions do not entirely dissolve in 3 or 4 c.cm. N/10 NaOH, but sometimes require a few drops of N/1, or even 10 per cent. soda for solution.

RELATION OF PROTEOSE THERAPY TO PROTEIN SHOCK

—	Heat test proteose. Acetic. 1 dp.	Heat test proteose. Acetic. 2 dps.	Albumin tests.	Urine in 24 hrs. c.cm.	Total N 24 hrs. g.	Proteose ppt. 24 hrs. g.	N % in "proteose."	Proteose N % of total.
7 Camb. ..	–	–	+++	900	11·25	0·1435	10·20	0·13
1 Prince ..	–	–	trace	600	6·14	0·0697	4·36	0·49
10 Colston	–	–	– – –	650	8·38	0·2798	6·75	0·23
10 Prince ..	+	+	+	750	4·88	0·2730	4·00	2·24
14 „ ..	–	–	? tr.	1500	10·80	0·1912	4·00	1·77
5 Perry ..	+	+	+ tr.	950	5·85	0·1757	3·98	0·12
8 „ ..		+	–	1200	4·26	0·1590	3·83	0·16
6 Colston	–	+ !	+ !	1000	10·57	0·1600	7·11	1·08
8 „ ..	+	+	–	1150	6·16	0·0708	17·90	0·20
2 „ ..	+	+	trace	480	3·46	0·0974	4·32	0·12
11 „ ..	+	+	trace	1100	8·25	0·1254	5·51	0·08
15 „ ..	+	+	+++	650	5·33	0·1664	6·12	1·88

dps. = drops.

In order to test whether injection of proteose was in any way comparable to protein shock therapy, the protein nitrogen was estimated in an "antisepsis" vaccine of Parke, Davis and Co., and the value arrived at was that each coccus = 1/5250 mg. N. A similar estimation was done on Warren Crowe's *Micrococcus deformans* vaccine, and each coccus there was found to contain 1/9217 mg. N.

Note.—These results are assuming that all the N found (after deduction for controls) is due to the cocci. Some of the N found probably comes from the culture medium during the contact of the normal saline with the slope, or from the employment of non-N free water when making the emulsion of cocci for the vaccine.

Now if the soluble portion of the alcohol precipitate be assumed to be pure proteose, 0·05 of the 1 in 1000 (stock) dilution is = 0·008 mg. N, which value is roughly comparable to about 100 cocci, and thus 0·05 of the 1 in 1 million dilution has a nitrogen value similar to that of one coccus.

Our figures given in the above Table indicate that the soluble alcohol precipitate instead of giving figures in the neighbourhood of 16 per cent. of the total nitrogen, thus being indicative of pure proteose, range from 3·83 per cent. to 17·90 per cent. with a mean of 6·50 per cent.

TESTS IN RHEUMATOID ARTHRITIS

Intradermal skin test.—Fifty cases were tested with all five dilutions of autogenous proteose, and gave negative results.

Scratch test.—Twenty-six cases were tested by this method with 1 in 1000 dilution of proteose, and proved negative.

Patch test.—Thirteen cases were tested by patches applied above the breast on either side, and left in situ for 48 hours. All were negative, with one exception.

This patient developed marked erythema under the proteose patch, and also had areas of vesiculation under the patches on both sides. It is interesting to note that when a week or so later the same patient had Scott's dressing applied on her wrist for a matter of 12 hours, a scarlet erythema with exfoliation occurred over the same wrist, with large areas of scarlet erythema over her abdomen and both legs.

As mentioned previously, Barber, Oriel, and Douthwaite have stressed the extreme toxicity of autogenous proteose. To test this we injected subcutaneously a 1 c.cm. of the strongest—i.e., the 1 in 1000—dilution of proteose into the right arm of 14 patients. Out of the 14 cases of rheumatoid arthritis, over half (8) had no focal or general reaction whatsoever, whilst in the other 6 the symptoms charted below do not indicate that degree of toxicity of the proteose that we had been led to expect:—

Case 1.—Pain in right hand which started five to six hours after injection, and lasted about two days.

Case 2.—Muscles of right arm stiff and hands more painful.

Case 3.—Marked pain in right arm and right hip.

Case 4.—Right arm swollen. Headache and temperature over 100° C. on evening of injection.

Case 5.—Pain in right arm.

Case 6.—Stiffness of right arm and rise of temperature to 99·5° C.

Whilst we are forced to conclude from our investigations that urinary proteose does not give similar cutaneous and dermal reactions to the injection of an antigen into a patient sensitised to that antigen, this does not necessarily negative its possible therapeutic value. We feel that this point—namely, that the injection of proteose, although possibly being in no way specific for a certain disease, may yet have therapeutic value in that disease—is at times apt to be overlooked by Oriel's critics. For instance, we have dealt successfully by means of autogenous proteose with cases of hay-fever which had derived no benefit from other and varied forms of treatment. But in a number of these successful cases the skin reactions were at all times negative.

The difficulty, however, arises as to the indications for the correct dosage to promote amelioration or effect cure. In rheumatoid arthritis one must needs fall back on the patient's focal and general reactions to assess the optimum dosage. It is extremely

difficult, as is well known, to assess whether any slight rise of temperature, malaise, or increase of pain in true active rheumatoid arthritis is due to excess in any particular treatment. For patients with rheumatoid arthritis have alternating periods of malaise and well-being, and, further, intermittent rises of temperature and increase in local pain will occur, even if they are in bed without any form of treatment. To cite an example: one case complained bitterly that the patch test (although negative) caused her marked exacerbation of her arthritic pain, whereas she felt no ill-effects at all from the subcutaneous injection of 1·0 c.cm. of 1 in 1000 proteose.

One experiment we tried may be quoted. Twelve patients with true active rheumatoid arthritis were selected on admission. Of these, six were chosen at random and placed on the appropriate hydrological treatment to serve as controls; the other six were given no other treatment save injections of proteose at weekly intervals, commencing with 0·05 c.cm. of the 1 in 10 million dilution, and given a similar quantity of a ten times stronger dilution each succeeding week. At the end of six weeks a note was made of subjective symptoms of all twelve patients. All six of the patients treated by hydrology were improved, whereas of the remaining six who had received proteose injections, one patient felt better, one felt worse, and the other four said there was no change in their condition since admission. This experiment was not of help, and only served to show that, if it be that proteose gives therapeutical results in rheumatoid arthritis, we had employed wrong dosage or not allowed sufficient time for therapeutic results to mature.

Since then we have tried the effect of giving intradermally exceedingly minute doses—e.g., 0·02 of the 1 in 10 million—over long periods. Apparent success in one case encouraged us to persevere with other cases. We also tried varying the strength of the dosage and varying the time interval, persevering with individuals for periods up to four months, but without any therapeutic effect.

ALLERGIC HISTORY IN RHEUMATOID ARTHRITIS

A careful inquiry was made into the patient's (1) own history, and (2) family history, for:

(*a*) Any *allergic conditions* such as eczema, migraine, asthma, urticaria, or hay-fever. The results obtained were as follows: out of 50 cases of rheumatoid arthritis: (1) two gave a positive history (one had had migraine and the other hay-fever); (2) one said her mother suffered from sick headaches, possibly migraine.

(*b*) *Family history of "rheumatism."*—Inquiry was made back to two generations; 13 gave positive answers—e.g., sister had rheumatic fever, grandmother rheumatoid arthritis.

(*c*) Patient's *past history of rheumatic fever:* 4 of the 50 cases of rheumatoid arthritis had previously suffered from this.

SUMMARY AND CONCLUSION

1. Fifty cases of true active rheumatoid arthritis have been selected and autogenous urinary proteose vaccines have been prepared.

2. Adopting the usual standard for positive skin reactions, all the cases treated were consistently negative to intradermal, scratch, and patch reactions (with one exception in the latter group).

3. Some points in the preparation of the proteose are considered, and the question is discussed whether the substance isolated be of a proteose nature.

4. Inquiry was made into the patients' previous and family history with regard to allergy. The following facts were elicited: (1) previous history of allergy, 4 per cent.; (2) family history of allergy, 2 per cent.; (*a*) previous history of rheumatic fever, 8 per cent.; (*b*) family history of "rheumatism" (all forms), 26 per cent.

5. Attempts were made by treating patients over long periods with various doses and at various time intervals with the proteose to produce amelioration, but in only one instance was any apparent success obtained.

6. From this we draw the conclusions: (*a*) that autogenous urinary proteose does not produce skin reactions in rheumatoid arthritis similar to those produced by antigens in cases of allergy. Further, its toxicity in rheumatoid arthritis has been exaggerated. (*b*) As a therapeutic agent in the treatment of rheumatoid arthritis, urinary proteose appears to be useless.

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Clinical and Laboratory Notes

A CASE OF ADRENAL NEUROBLASTOMA

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THE case reported in THE LANCET of Nov. 19th (p. 1101) by Mr. Frank Law recalls one which I saw last year, which gave rise to considerable difficulty in diagnosis. In this particular case, however, histological examination of a subcutaneous nodule was of great help.

A male child, 17 months of age, was admitted to the Infants Hospital on July 11th, 1931. He had been brought by the mother because there had been anorexia and diarrhœa with loss of weight for the last four months, and because there were scattered over the body "lumps" which the mother averred had been present since birth.

On examination the child was seen to be very emaciated, his weight being only 15½ lb. instead of the average normal of 25 lb. at that age. The skin was dry, powdery, and of a slight but quite definite café-au-lait tinge. This pigmentation was most marked on the face and on the dorsal aspects of the hands. Apart from the pigmentation and the wasting, the child had a curiously repulsive aged facies. A non-medical friend, when shown the photograph, took it to be one of a famine coolie rather than that of a child of 18 months. The abdomen was distended but no definite tumour was felt at any time.

The most striking feature was the large number of subcutaneous nodules which were present. Most of these were on the chest wall, and appeared in certain areas to run in chains along the intercostal spaces. There was a definite chain running along the lower border of the scapula. These nodules were freely movable under the skin and varied in size from about 1½ in. long by ¾ in. across, to that of a small pea. There were similar nodules on the anterior abdominal wall and along the flexor aspect of the forearms. The glands in the axillæ and groins were also enlarged. The distribution of these nodules, the pigmentation, and the absence of any other definite symptoms suggested a diagnosis of von Recklinghausen's disease.

About three weeks after admission, other symptoms appeared which suggested very strongly involvement of the suprarenal gland. At this time there appeared a fine growth of downy hair over the greater part of the body

but with a definite localised overgrowth in the moustache and beard areas. At the same time the eyelashes showed a really remarkable growth, so rapid as to be noticeably longer in the course of a week. No hair, however, was seen on the pubis or in the axillæ at any period. There was a slight degree of secondary anæmia but no leucocytosis or relative lymphocytosis.

On August 23rd one of the subcutaneous nodules on the anterior abdominal wall was excised. Dr. J. G. Greenfield, who very kindly examined the *sections* from this nodule reported that it was a true neuroma containing ganglion cells in addition to numerous nerve bundles. Owing to the fixation no satisfactory staining of the nerve cylinders was obtained, so that it was impossible to state whether they were myelinated or not. The ganglion cells were like those of the sympathetic ganglia, and lay in small fibrous tissue capsules in the neuromatous tissue. The child became increasingly emaciated and died on Sept. 1st. On the day he died the only hæmorrhages which were ever seen were noted as a small patch (about 1½ in. square) of petechial hæmorrhages on the anterior abdominal wall.

Post mortem, the left suprarenal capsule was normal but the right was replaced by a firm dense greyish-white tumour, the size of a golf-ball, over the summit of which was stretched the cortical part of the suprarenal body. The tumour was sharply demarcated from the kidney by its very well-defined capsule. The pancreas was twice its normal size for this age, and was studded with hard white nodules, closely resembling the suprarenal tumour. There was a generalised enlargement of the abdominal glands. Dr. H. W. C. Vines, of Charing Cross Hospital, who very kindly cut sections, reported that the suprarenal tumour was a medullary neuroblastoma, and that the nodules in the pancreas, the subcutaneous tissues, and the abdominal glands were metastases. The thyroid, pituitary, and pineal glands were normal histologically.

This case is of interest in that the subcutaneous nodules were stated to have been present from birth. Suprarenal neuroblastomata are rare, and subcutaneous metastases in these cases are still more rare. Dr. N. B. Capon, of Liverpool, has recorded one such case in a child of six months, and mentions three other cases. The other unusual feature in this case was the hirsutes which is probably to be regarded as evidence of cortical irritation since there were no histological changes in the cortex.

I should like to thank Dr. W. E. Robinson, under whose care this infant was in hospital, for permission to report this case, and Dr. Montague Maizels for the photograph reproduced.

INTUSSUSCEPTION OF THE BOWEL INTO THE STOMACH

FOLLOWING GASTRO-ENTEROSTOMY

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A MAN, aged 48, was admitted to Preston Royal Infirmary on the evening of August 2nd, 1932.

History.—Twenty years ago perforated duodenal ulcer sutured, followed shortly afterwards by (posterior) gastro-enterostomy. Good health until day before admission. Sudden attack of epigastric pain 24 hours before admission, followed by repeated hæmatemesis and pain, not persistent but spasmodic. Bowels moved normally day before admission.

Condition on admission.—Very ill, slightly pale, pulse-rate 100, temperature 98° F., indefinite pain in the epigastrium, which at times disappeared, abdominal muscles quite soft. (Morphia gr. ¼ given before admission.) A definite diagnosis was not made. The question of a high obstruction was considered, but in view of the patient's poor general condition exploratory operation was considered inadvisable, and he was therefore treated for gastric hæmorrhage. Further hæmatemesis occurred shortly after admission, and the following morning a blood transfusion of one pint was given. Swelling in the epigastrium then more definite, but patient's condition did not warrant operation. Death occurred the same evening.

Post-mortem examination showed a very dilated stomach, containing dark blood-stained fluid and a retrograde intussusception of nearly 10 feet of small intestine through the stoma of the gastro-enterostomy, the stoma acting as a constricting band. No other lesion was detected, but the intussusception was not reduced, in order to preserve the specimen.

The very rare possibility of an intussusception into the stomach following gastro-enterostomy should be kept in mind. A vague epigastric swelling, associated with hæmatemesis following gastro-enterostomy, should suggest the possibility of an intussusception. Had this case been diagnosed earlier and an immediate operation performed, there should have been an excellent prospect of recovery, for the bowel was not gangrenous and the intussusception tended to reduce with ease. F. W. White and I. R. Jankelson,[1] in a review of 18 recent cases, stressed the difficulty in diagnosis. Of this series, 15 were operated upon; 9 of these made a good recovery.

I am indebted to Mr. A. Toulmin for permission to report this case.

A FOREIGN BODY IN THE ŒSOPHAGUS

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ON Oct. 22nd last, at 5.30 P.M., I saw in hospital a sturdy farm lad, 16 years of age. He was sent in with a diagnosis of foreign body in the trachea. At 11.30 A.M. he had a hedge nut in his mouth which he stated slipped down his throat on taking a breath. His doctor saw him afterwards and brought him to hospital—a distance of 40-odd miles—on the same afternoon.

He was markedly cyanosed and distressed, and spitting up much frothy mucus. Radiography was negative, which was to be expected owing to the vegetable nature of the foreign body. Auscultation of chest and trachea revealed no abnormal signs. He told me he was unable to swallow anything, and an attempt to drink a mouthful of water verified this. I cocainised his throat and a good view of his larynx and upper trachea was obtained with laryngeal mirror; nothing abnormal was seen. I thereupon passed a probang into the œsophagus, and on withdrawing it a hedge nut, the size of a plum stone, was removed with immediate disappearance of his dysphagia; the cyanosis cleared up about ten minutes later and he returned home.

The points of interest in this case are: (1) Why should a small nut in the œsophagus cause intense cyanosis and distress? (2) Why should a small nut stick at all in the œsophagus? I imagine the nut was arrested in the post-cricoid region and caused a vagal disturbance of the superior and recurrent laryngeal nerves and spasm of the cricopharyngeal sphincter, but I am open to correction. I feel certain that an anæsthetic would have been attended with serious results and the œsophagoscopy also would have not been too easy or free from risk in view of his cyanosis and distress.

[1] New Eng. Jour. Med. 1928, cxcix., 1189.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF MEDICINE

AT a meeting of this section held on Nov. 22nd, the chair was taken by Dr. MORLEY FLETCHER, the President, and a discussion on the

Pathogeny of Nephritis and its Bearing on Treatment

was opened by Prof. O. L. V. DE WESSELOW. He said that he would confine himself to acute glomerulo-nephritis, with which he included "focal" nephritis. The pathogeny of ischæmic nephritis was essentially that of hypertension, while nephrosis was so rare as to be of minor importance. Glomerulo-nephritis was the result of infection, which might be situated anywhere, but was in most cases found in the tonsils or upper air passages. The only possible exception was trench nephritis; in only 4 out of 100 cases of that condition had he been able to find previous tonsillitis. Possibly at that time minor infection was not taken much notice of, and the skin had been rather neglected. An investigation was in progress at St. Thomas's Hospital to find out something of the incidence of nephritis in tonsillitis, its relationship to the streptococcus, and its seasonal prevalence. In the 134 cases so far completed the hæmolytic streptococcal infection rate had risen steadily since the summer, and at the same time the incidence of albuminuria had risen. There was no particular evidence, however, that the hæmolytic streptococcus was of any particular importance in nephritis. The most obvious determining factor was cold, and there was some experimental and statistical evidence in favour of its importance. In trench nephritis the effect of cold had been very marked. The typical histological feature was extreme ischæmia of the glomerulus; this had also been observed in trench nephritis. Generalised vaso-constriction, shown by rise in blood pressure, was characteristic and preceded the albuminuria. The administration of vaso-constrictor substances was known to be followed by albuminuria. Cold acted by aggravating the constriction. The release of the spasm might also explain the sudden diuresis, fall of blood pressure, and disappearance of albuminuria. It was still uncertain whether there were or were not pressor bodies in the blood of the patient, and where they came from if they were present. There was no evidence that the blood pressure rises were due to allergy; their cause, in fact, was unknown.

The prognosis was extraordinarily favourable on the whole; only about 25 per cent. of cases became chronic. It was therefore difficult to assess the results of treatment. The course of those which did not recover was very variable: it might be subacute, subchronic, or chronic lasting up to 60 years. The first essential was prevention. Tonsillitis was not taken seriously enough by general practitioners, and cases came under observation too late. At fever hospitals three weeks of care and warmth were considered valuable in preventing nephritis. The urine should be examined at least once after the convalescent stage of tonsillitis, and patients should be warned to avoid exposure for three weeks. The main treatment was directed to any focus that could be found; it should be eradicated during the remission stage. The patient should be warned that the operation might cause a temporary flare-up, and prophylactic vaccine before operation had been advised. The kidney lesion might progress when no infective process was going on. These kidneys ended as secondarily contracted kidneys, and at this late stage little could be expected from removal of foci; foci should nevertheless be removed to avoid further exposing the patient to the conditions which had caused his trouble.

Dr. J. C. SPENCE thought there must always be confusion until an ætiological classification was used. Acute glomerulo-nephritis was the manifestation of an infection. He distinguished it from focal nephritis, drawing attention to the marked latent period. The same period was seen in acute rheumatism. The age-incidence also showed analogy between the two diseases; both were very rare under the age of 2. Further, in both conditions the lesion was widely disseminated at the active stage. Some cases of both, for no reason at all, became chronic; the state of hypersusceptibility of the tissues was probably the ultimate cause. What was needed in treatment was early diagnosis, warmth, and nursing. Tonsillectomy had little effect in rheumatism, and should probably not be done in nephritis unless there was obvious infection. The differential diagnosis between nephrosis and a nephrotic type of glomerulo-nephritis was very difficult, but essential for prognosis. The form of chronic nephritis found in renal dwarfism was not usually associated with hypertension; in these cases there had never been an infective illness to cause nephritis.

Dr. T. IZOD BENNETT agreed with the general facts laid down by the two preceding speakers, particularly with the emphasis laid on the infective character of glomerulo-nephritis. He thought that a line might be drawn between focal and glomerulo-nephritis, although the diagnosis could not yet be certainly made at the onset. In the last ten years a great deal had been learnt about the mechanism of production of the disease, and much better general results could be obtained from treatment if these results were logically applied. For example, dietetic measures were most important in the early stages: practical starvation, if possible, as long as hæmaturia persisted. There was a tendency to give too much protein—e.g., in milk—when there was still inflammation in the kidney. Septic foci should be eradicated; enlarged and septic tonsils should be removed in all cases of persistent albuminuria. True uræmia was so definitely a metabolic disturbance that it suggested logical lines of treatment which were of definite value. The condition could be ameliorated over long periods by severely limiting nitrogenous intake. Severe muscular cramps were cured by the administration of calcium, which was diminished in association with a high blood nitrogen and a lowered alkali reserve.

Prof. F. R. FRASER believed that the infective factor had been neglected in past years. If subacute and even chronic nephritis were subacute and chronic infections, several lines of treatment were being neglected. The infection was continuing, as in chronic rheumatism. The whole picture of the disease was one of progress. Infection might be lodged in an inaccessible place, but were patients being rested sufficiently? It was difficult to tell when the process ceased to be active; the patient ought to be rested as long as cells were found on centrifuging. Criteria had been developed for the activity of rheumatism; such criteria were needed for nephritis.

Dr. WILLIAM CRAMER said that nephritis could be produced experimentally by a diet poor in magnesium, when no question of a toxin could be involved. Magnesium had a biological antagonism to calcium; this might explain its action. The glomeruli faded away and the tubules became wide spaces almost denuded of epithelium. Magnesium sulphate (25 per cent. solution, 2 c.cm. per kg. body-weight intramuscularly) had been successfully used for uræmia, and might prove very useful for all conditions where circulating toxins or pressor substances were not being excreted by the kidney.

Prof. A. W. M. ELLIS supported Dr. Spence's plea for recognition of the significance of the latent period. Acute glomerulo-nephritis occurred particularly during the period in which immunity to infection was developing. The essential phenomenon was a general capillary disease of the cardiovascular system, to which the rise of pressure was secondary. In the severe cases extensive necrosis of the walls might take place, and in the milder cases there might be spasm of the afferent arteries due to actual disease of the arterial wall. Insufficient emphasis had been laid on treatment, he thought. Strict dietary treatment—i.e., starvation—was of the first importance. His patients had nothing but fruit juice until the blood pressure was normal and œdema had disappeared. The fall in blood pressure was most important in prognosis. The extraordinary effect of rest in bed needed repeated emphasis. Rest should be prolonged. He discussed an important group in which the treatment was not the treatment of the kidney but the treatment of the heart. Deaths were practically all due either to the increased cerebral pressure or to congestive heart failure, and the heart was the more important. It was not the usual kind of heart failure; the heart was greatly dilated, but the signs of congestive heart failure were absent. The patients were breathless, and had acute attacks of dyspnœa, coughing up blood-stained sputum, and dying with œdema of the lungs. Recovery could be obtained in many cases by absolute rest, venesection, and digitalis, preceded by strophanthin. The severe case, rare in children, was not so rare in adults.

Mr. R. H. PARAMORE protested against the idea that nephritis was due to infection. A large part of the blood going to the kidney entered the medulla, and the medulla was always forgotten. Turgescence of the renal medulla was a more likely cause than spasm of the glomerulus. Decapsulation would shorten many lengthy cases and save lives. The importance of rest supported this view.

Dr. K. H. TALLERMAN said that the length of time patients were kept in hospital did not seem to affect the prognosis. Magnesium sulphate had originally been given to relieve cerebral œdema and so to ameliorate the symptoms.

Prof. LEONARD FINDLAY stressed the importance of the pathological and experimental side; what was needed was correlation of the symptoms with the condition of the kidney at the time. In some 23 cases in which decapsulation had been performed he had obtained pieces of kidney tissue; all elements of the kidney had been found to suffer. He was rather astonished at the acceptance of the idea that nephritis was an infection by a more or less definite organism. Proof was needed. Analogies had been drawn with another condition which was just as doubtful. There was one great difference: acute rheumatism in many instances seemed to get quite well; this was not his experience in acute nephritis. He had not seen the definite latent period. A large percentage of all children had had impetigo or unhealthy tonsils.

Dr. H. A. TREADGOLD asked whether the rise of blood pressure was systolic, diastolic, or both, as this would show where the cause lay. The emotional factor in systolic pressure made it useless as diagnostic evidence.

The PRESIDENT asked how many cases showed streptococci in the urine; he had failed to find them. He thought the tonsils were often responsible, but it was very important to be sure that the sinuses were not infected if the tonsils were normal.

Prof. DE WESSELOW in reply said the diastolic pressure was always raised. He had not found streptococci in the urine. Much more focal nephritis was seen in childhood because the mothers were always watching the excreta. Nephritis was not an infection of the kidney, but followed infection. He did not think that the latent period was proof that the nephritis was associated with the development of immunity. Allergy was not associated with rise of blood pressure. He did not know whether the enlargement of the heart was dilatation or hypertrophy.

MEDICAL SOCIETY OF LONDON

Sir JOHN BROADBENT, the President, took the chair at a meeting of this society on Nov. 28th, and Dr. A. H. DOUTHWAITE read a paper on the

Use and Abuse of Massage

He said that massage—which he defined as the manipulation of soft parts of the body for remedial and hygienic purposes—was of almost no value alone, and necessarily included remedial exercises. Pain resulting from injuries could, he said, be relieved more lastingly than by drugs, and the underlying lesion was benefited. Five minutes to a quarter of an hour of effleurage would often remove the spasm and pain of a Colles's fracture, and allow the deformity to be corrected with a minimum of effort and without the aid of an anæsthetic. A sprained ankle treated by immobilisation was incapacitated for five or six weeks and was not normally strong again for six months; immediate massage would reduce these periods to four days and three weeks respectively. Massage of an inflamed area, as in arthritis or spondylitis, was contra-indicated, but acute or chronic fibrositis responded better than to any other form of treatment—possibly because rheumatic inflammation was a very different process from any microbial reaction. The lecturer demonstrated his treatment with the help of a sister masseuse and a subject. Œdema, as in the "white leg" of a first pregnancy, could, he said, be alleviated if not cured. Mechanical support was necessary, but the constant heaviness, the inevitable atrophy, and the possible ulceration and inflammation were averted. In acute femoral thrombosis the limb was raised for about 20 minutes and then light massage was given to the outer side of the limb only, with no manipulation over the inflamed vein, the object being to establish a collateral circulation. Constipation, visceroptosis, and hæmorrhoids benefited greatly, and the use of purgatives could be gradually discontinued. The exercises included abdominal breathing to obtain better diaphragmatic movement; kneading of the abdomen alternating with a vibratory in-and-out shaking provided a mechanical stimulus to peristalsis. When there were accumulations in the sigmoid and descending colon, special attention was directed to that region. The massage was given on both sides with the knees and thighs fully flexed, and in the knee-elbow position, the last of which was exceptionally good for cholecystitis. Pelvic rotation was also valuable, with

alternate hip lifting and adduction, and trunk rolling.

Muscle kneading played a valuable part in the treatment of wasting of localised muscle groups and generalised atrophy by improving the circulation of blood and lymph and preparing the way for graduated exercises. In congestive heart failure massage aided the venous return to the heart, and in rheumatic carditis graduated remedial exercises should be given before the patient was allowed up.

After quoting Sir Bernard Spilsbury's recent Harveian Oration, in which the author had ascribed thrombosis largely to immobility of the legs and the mechanical disadvantage imposed on their venous circulation, Dr. Douthwaite showed a series of exercises which he hoped would reduce the incidence. Massive collapse might, he said, be avoided by encouraging respiratory movement and mobilising the diaphragm. Deep breathing was possible without undue pain, even after cholecystectomy, and special breathing exercises, sometimes assisted by carbon dioxide, were of value even after collapse had been established. Massage of the chest gave good results in the treatment of bronchiectasis, empyema, and asthma. Accumulations were removed by massage and gravity combined, and the much-needed expiratory freedom was given to the asthmatic patient. Other conditions in which massage was valuable were chronic senile sciatica, lumbago, tabes dorsalis, and after manipulative treatment.

In conclusion, the lecturer outlined the main abuses of massage as its use in an inflamed area, persistence in applying it after exercises should have been started, so that the patient gave up personal effort; failure to graduate the exercises carefully, especially in heart disease; and the introduction of massage too early in poliomyelitis.

Mr. GWYNNE WILLIAMS stressed the importance of active movement. He warmly recommended the Lucas-Championnière method of light stroking, especially in fractures of the surgical neck of the humerus where the fragments were in contact, but held that when benefit tended to cease—at about ten days—active movements should be encouraged. Fractures of the lower end and above the condyle were more difficult. Light stroking would help, but active movements should begin at once. The ordinary massage for these injuries was an abuse. Mr. Williams suggested that light effleurage in Colles's fracture had hypnotised the surgeon rather than the patient. It made the patient more comfortable, but he doubted whether it would enable the lower fragment to be placed in position without some kind of anæsthetic, or to be kept there without retentive apparatus of a form which would make massage impossible. Active exercises were all-important, but the difficulty was to persuade the patient to move his fingers. The speaker stressed the importance, in sprains of the ankle, of active exercise from the beginning. Patients with a crack in the fibula and very little displacement should wear an ambulatory plaster and be taught to walk. He was disappointed with the results of massage after fracture of the shaft of the femur; here again active contraction of the muscles was more important. Massage of a tender joint associated with fracture was bad. Even in the œdema which followed immobilisation without massage, bandaging and walking exercises gave better results than massage, with less trouble. In nerve injuries and paralysis massage benefited the joints and skin but not the muscle, which was best assisted by the position of complete relaxation. The speaker doubted whether massage would prevent post-operative thrombosis.

DISCUSSION

Dr. J. B. MENNELL pointed out the grave misunderstanding that had obscured Lucas-Championnière's teaching. That author's original work had, he said, been on the treatment of fractures by massage and mobilisation, and the word "mobilisation," by far the more important, had been forgotten. Massage was a means to an end only. Lucas-Championnière had never preached against the use of splints, or that a Colles's fracture could be reduced by massage. He had taught that massage and movement must be painless, and if this law were observed there would be fewer bad results from massage of the elbow-joint. Many patients with impacted fracture of the neck of the femur had died from prolonged immobilisation; they could easily be got out of their beds and helped to walk and do exercises, but unless they could have skilled assistance it was much better to give them skilful massage. As medical officer in charge of wounded men the speaker had left paralytic cases alone for some ten days to see how far the treatment that they had already received was preventing their recovery. In these cases the masseur's failure was nearly always due to lack of intelligent treatment by the medical man. Recovery was often delayed by waiting for faradic response. Skilful massage restored voluntary movement far sooner than any other method.

Mr. P. JENNER VERRALL agreed that massage had no effect on muscle after peripheral nerve injury or poliomyelitis, except in so far as it improved the circulation. In the early stage of poliomyelitis anything but complete relaxation was absolutely contra-indicated, but in the second stage centrifugal massage was of the greatest possible value. On the other hand, in paralysis of muscle, nothing but relaxation was of any use. This distinction between two lower motor neurone lesions was a curious one. He stressed the principle, in the treatment of injuries, of immobilising only such parts as were injured, and of improving the function of the others by all possible means. Colles's fracture, he said, could, in most cases, not be reduced by effleurage and hypnotism, but required definite physical force. When it was reduced it would remain reduced in the absence of any counter agency, but it would not resist the ill-advised efforts of an unskilful masseur. For this reason Sir Robert Jones had rightly insisted on fairly long immobilisation with movements of the fingers. With a highly skilled masseur, on the other hand, massage could be started on the first day. The use of function in the treatment of fractures had increased greatly since the introduction of skeletal traction, but massage would always have its use as a preparation for active movement.

Dr. W. S. C. COPEMAN lamented the tendency to order massage and electricity for such out-patients as the doctor did not wish to see again. The fact that so much was heard of the ill-effects of massage showed that it could be a potent remedy. Massage often harmed a patient psychologically by being too long continued where the patient's active coöperation was necessary for the health of his outlook. Massage alone had one important use: mobilising the chest in spondylitis of the costo-vertebral junctions. Physicians should make more use of the specialised knowledge of qualified masseurs, and should learn more from them.

Dr. ALEXANDER CAWADIAS advocated in the treatment of constipation the galvano-faradic interrupted current, but praised massage, especially sliding movements exercised on the colon itself, as an invaluable adjunct. It was not, he said, necessarily contra-indicated in thrombo-angiitis obliterans. The

reason was that most patients were diagnosed late, after they had been massaged in ignorance of their condition. Simple massage of the external surface, avoiding the small veins, gave considerable relief. Hippocrates had insisted on the value of massage and movement, and had travelled a considerable distance to learn it from an "empiric"; the speaker recommended similar action by his colleagues.

Dr. L. WAINWRIGHT insisted on correct diagnosis to eliminate serious abdominal conditions for which massage, if given for constipation, would be dangerous.

Mr. C. HOPE CARLTON pointed out the value in actual cash of the principle of fixing the injured part only and mobilising the others; whereas until two years ago an employer of a man who suffered a compression fracture of the body of a vertebra had been glad to settle with him for £1000, to-day by Watson-Jones's method the patient could be on his feet in a week. Treatment of a Colles's fracture depended, he thought, on the line of the break. Mr. Fairbanks had obtained good results in poliomyelitis from arthrodesis of the tarsal joints in order to rest the anterior muscles. Active and training movements would benefit the spastic paraplegias if continued for a number of years.

Dr. W. E. LLOYD urged that breathing exercises should be prescribed much earlier in diseases of the chest. Bronchiectasis was often an end-result of chronic disease, and could be obviated by training. It was important to train asthmatics to breathe correctly in the erect position.

Dr. DOUTHWAITE, in reply, reminded Mr. Williams that massage could be commenced within 24 hours of an operation without disturbing the patient. The foundation of embolism was laid within the first few days, when they could not possibly get up and about. He stressed the distinction between a spine injured by fracture and one immobilised by a pathological process. Constipation was often due to a flabby abdominal wall, and not to an abnormal colon; massage could restore tone, and the patient could learn to do it himself. In thrombo-angiitis obliterans the trouble was arterial rather than venous, and massage was not likely to be of any value.

LIVERPOOL MEDICAL INSTITUTION

AT a pathological meeting held on Nov. 17th, with Prof. R. E. KELLY, the President, in the chair, Dr. T. B. DAVIE read a paper on the

Post-mortem Pathology of Pulmonary Tuberculosis

Discussing the pathogenesis of pulmonary tuberculosis, Dr. Davie recommended a simple classification of the conditions found at autopsy which, he suggested, would also provide a useful basis for clinical classification. He divided the various lesions found into: (1) chronic, which included ulcerative phthisis and fibroid phthisis; and (2) acute, which included miliary tuberculosis, broncho-pneumonic phthisis, and pneumonic phthisis. He enumerated the modes of dissemination of the infection from the primary focus, and said that spread along the lymphatics was the characteristic process in tuberculosis; dissemination along the subpleural channel accounted for early pleural adhesions and possibly for pleural effusions; spread along and in the fibrous interlobular septa explained the failure of these natural barriers to prevent the spread of tuberculosis. The features of arterial obliteration, hæmoptysis, and miliary tuberculosis were explained by spread along the perivascular lymphatics, while spread along, and caseation into, the bronchial tree gave rise to the wide dissemination of tubercle bacilli by mechanical means, and accounted for the frequent broncho-pneumonic and pneumonic terminations of otherwise chronic cases. Chronic ulcerative phthisis and fibroid phthisis differed in the amount of fibrous tissue reaction and caseation within the tuberculous nodes. The acute form of pulmonary tuberculosis was essentially broncho-pneumonic, the pneumonic form being confluent broncho-pneumonic phthisis. In this the confluence represented either the extreme of acuteness and widespread dissemination, or the gradual coalescence of originally discrete foci. Miliary tuberculosis was strictly a complicating accident of any form of tuberculosis.

Dr. Davie illustrated the various types of pulmonary tuberculosis by lantern slides, mounted specimens, and microscopic sections, and analysed his observations on 130 post-mortems on phthisical patients with regard to the frequency of occurrence of the different types, the lobar distribution of lesions, the frequency of different complications, the presence of associated diseases, including malignant disease, and the common post-mortem findings in cases wrongly diagnosed as pulmonary tuberculosis.

DISCUSSION

Dr. A. ADAMS emphasised the need for attendance in the post-mortem room by clinicians as a corrective against many errors to which they were prone. The statistics of adhesions found, and their character, were of great import in view of the present craze for artificial pneumothorax in every possible and impossible case.

Dr. C. ALLAN BIRCH spoke of his experience during a year's work in pulmonary clinics in North America, and described cases of acute benign exudative pulmonary tuberculosis. These cases were very rare, and their post-mortem pathology unknown. Dr. Birch thought that the orthodox methods of the pathologist left the clinician without a means of estimating the type of pathology present in a living patient. He suggested that routine post-mortem X ray studies and accurate correlation at autopsy with the lesions found in the lungs might lead to a method of classifying living cases on a pathological basis. Certain American phthisiologists attempted to read pathology on X ray films, but they had no definite criteria.

Mrs. BARTON HALL raised the question of congenitally acquired tuberculosis, referring to a case of miliary tuberculosis in a stillborn child whose mother suffered from tuberculosis of the lungs.

Dr. R. H. MOLE said that Fried had described experiments in which rabbits were infected with the tubercle bacillus by way of the trachea; the cells primarily responding to the acid-fast bacilli were the so-called alveolar epithelium. In Dr. Mole's experience, meningitis complicating pulmonary tuberculosis had been more frequent than was shown in Dr. Davie's figures. Probably age had a significance. In a series of ten autopsies on patients dying as the result of tuberculosis, five were infants of 16 months or under. Four of these had meningitis, and those four also had tuberculosis of the tonsils. Tuberculous tonsils, cervical and bronchial glands, lungs, and meninges formed a syndrome in young children more common than was usually recognised.

Dr. H. A. OSBORN said that the problem of finding tubercle bacilli in granulomata was an important one, especially in anomalous lesions. One rarely found the bacillus in the giant cell, as pictured in text-books.

Mr. P. H. WHITAKER said that comparison of post-mortem findings with radiograms was of extreme moment to the radiologist, and helped him to assess the relative importance of various shadows and mottlings. A radiogram was apt to exaggerate the lesion found post mortem probably because the œdema round the lesion was mistaken for consolidation. That probably accounted for the different interpretation of the acute pneumonic type of tuberculosis by the pathologist and the clinician. "Ring shadows" were almost certainly due to the suction action of the two layers of the pleura on a thin fibrin exudate between them. In a number of cases where these shadows had appeared in the radiogram, they could not be found post mortem, and had they been cavities, could not have closed in the time intervening. It was surprising how accurate a picture of the pathological process was given by X rays, but when tuberculous disease was associated with other pulmonary lesions, such as pneumoconiosis and malignant disease, diagnosis became difficult.

MANCHESTER MEDICAL SOCIETY

AT a meeting of this society on Nov. 2nd Dr. CATHERINE CHISHOLM gave an account of an inquiry into the varying incidence of active rickets in Manchester made by the maternity and child welfare department of the public health authorities in conjunction with the Manchester Babies' Hospital.

Rickets in Manchester

It is known, she said, that the centre of Manchester and the industrial area has fewer hours of sunshine than the outer suburbs with the exception of a short time when north or north-west winds prevail. During two and a quarter years infants from 10 to 30 in number were taken to the hospital, their histories and general condition were noted, and later radiograms were taken of wrists, knees, and occasionally ankles. In all, 1600 children were examined. It was found that 7·3 per cent. of these showed marked signs of definite active, healing or lately healed rickets. A further 21 per cent. showed signs of very slight rickets or were suggestive of rickets, but not sufficiently definite to class with the other cases; 9·2 per cent. of the children of the *inner* ring showed marked signs of rickets; 4·6 per cent. of the children of the *outer* ring showed marked signs of rickets.

The monthly incidence of rickets in both years showed its peak in May, and after the severe winter 1928–29 the percentage of children in the inner ring showing marked signs of definite rickets reached 30 per cent. On examining the social conditions, the effects of poverty and overcrowding, though these were evident in a higher incidence, were not so marked as when the type of the home in regard to housewifely care and mothercraft was considered. Here in the *good* homes 4·7 per cent. had rickets; in the *fair* homes 6·4 per cent. had rickets; whereas in the *neglected* homes 20 per cent. had rickets. With actual poverty the variance was between 6·3 per cent. and 11·9 per cent., and with overcrowding, between 6·7 per cent. and 9·6 per cent.

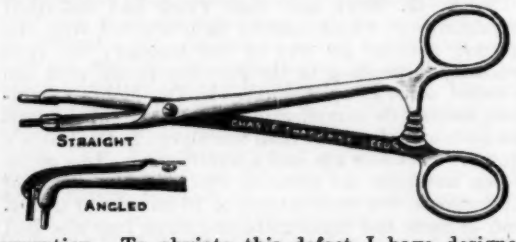
It was noted that only 16 per cent. of the rachitic children were never breast-fed and that 15 per cent. were breast-fed for 12 months and over. Dr. Chisholm pointed out that lactation, though the best method of rearing the young child, was influenced by the health of the mother and her exposure to sunshine, and was not sufficient in itself to protect from rickets, especially if it is prolonged. She believed that for the prevention of rickets in the more neglected homes, from which the mother did not of her own volition attend maternity centres, the well-informed, tactful, and enthusiastic health visitor was the agent most likely to banish rickets. In season and out of season she could supervise the progress of the child. Private practitioners, she said, should make it their business to study the physiology of the lactating mother and child, and particularly the advantages and limitations of breast-milk feeding.

CORRIGENDUM.—In the debate on Faith in Medicine, before the Hunterian Society recently, Dr. Robert Hutchison was reported to have alluded to faith in "Purkinje's Tract"; but he said "Perkins's Tractors."

NEW INVENTIONS

COMBINED RADIUM NEEDLE INSERTER AND PROBE

AT present radium needle inserting holders and radium needle probes are made as two separate instruments. This entails extra work, waste of time, and unnecessary exposure to the radiation during

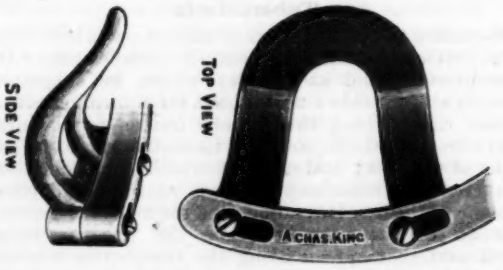


operation. To obviate this defect I have designed a combined radium needle inserter and probe as shown in the accompanying figure. Both angled and straight types of instrument are now being successfully used at the Manchester and District Radium Institute. Charles F. Thackray, Park-street, Leeds, are the makers.

DAVID A. HERD, L.R.C.P., L.R.C.S. Edin.

AN IMPROVED GAG

HAVING experienced some difficulty in keeping the Boyle Davis gag in position in edentulous patients, it occurred to me that some form of plate in place



of the usual dental attachment would be more satisfactory. This, which is shown in the accompanying illustration, we have used for some time at the Royal Northern Hospital and it has proved very useful. The gag has been made for me by Messrs. A. King, Devonshire-street, London, W.

R. WADE, M.R.C.S. Eng.

REVIEWS AND NOTICES OF BOOKS

Non-Tropical Sprue

A Study in Idiopathic Steatorrhœa. By TH. E. HESS THAYSEN, M.D., Senior Physician to the St. Elisabeth's Hospital, Copenhagen. London: Oxford University Press, Humphrey Milford. 1932. Pp. 258. 10*s*.

Dr. Th. E. Hess Thaysen has for many years been interested in idiopathic steatorrhœa, or, as he prefers to call it, non-tropical sprue. He has done more than anyone else in Europe to collect the scattered literature of the subject and to attempt to unravel its complex clinical and pathological features, and has recently brought all his material together in this monograph. His main thesis, as was apparent in his earlier papers, is that non-tropical sprue is identical with tropical sprue and probably with Gee-Herter's or cœliac disease, "that these symptom-complexes constitute the 'cœliac affection,'" first described by Gee in 1888. Unfortunately his analysis of cœliac disease in children is far from complete. He fails to appreciate the striking fact that the majority of adult patients with idiopathic steatorrhœa have a history of diarrhœa or bone deformity dating from infancy. The points of similarity between cœliac disease and non-tropical sprue are indeed striking, and a greater mass of evidence for their identity is available than he employs. On the other hand, the difference between these two conditions and tropical sprue appears more significant than he suggests. The discussion of abnormalities of carbohydrate metabolism is of considerable interest. He brings forward experimental evidence which suggests that the flattened type of blood-sugar curve characteristic of non-tropical sprue is due to an abnormality in function of the regulatory mechanism which maintains the normal blood-sugar concentration rather than to failure of absorption or storage. He lays greater stress than other observers upon the occurrence of insufficiency of endocrine glands. He believes that the tetany, low blood calcium, and osteoporosis are dependent upon dysfunction of the parathyroids. This perhaps explains his omission of vitamin D, so valued by other clinicians in treatment of this disease, from his discussion of therapeutic measures.

Three theories, which might explain the ætiology of "the cœliac affection," are discussed; that it is due to infection, to avitaminosis, or to a peculiar "constitutional anomaly." What this anomaly may be, apart from abnormal functioning of endocrine glands, is not indicated. The possibility that the symptoms are due to failure of digestion, absorption, or utilisation of essential factors in the intestinal canal is not suggested. Full case records and an adequate bibliography are included. The translation leaves much to be desired; the more theoretical discussion is sometimes hard to follow, making it difficult to do full justice to Dr. Thaysen's careful study.

General Paralysis of the Insane

Contribution à l'étude du traitement de la paralysie générale. L'impaludation cérébrale. By JEAN COLLOUDON, Interne des Asiles de la Seine. Paris: Le François. 1932. Pp. 179.

THE injection of malarial blood into the brain or lateral ventricles of patients with general paralysis of the insane has been a form of treatment practised by M. Ducosté at Villejuif for several years. His method and results are set forth with enthusiasm in this thesis by one of his pupils. After a review of the available methods of treatment by arsenical preparations and malaria, especially those which aim at the direct introduction of the therapeutic agent into the substance of the brain or into the cerebro-spinal fluid, Dr. Colloudon passes to a description of the operative technique employed and the clinical effects. The dangers of intracerebral injection are said to be negligible. The intraventricular procedure has not been so happy; of 23 cases, 2 died of the injection, and the author shows more cautious ardour in his commendation of this method than of the other. The number of cases treated at Villejuif between 1927 and 1932 was 93; of the 70 treated by the intracerebral method, 21 per cent. are said to be cured, 46 per cent. improved, and 31 per cent. stationary; of the 23 who had malarial blood injected into the ventricles, there was a rather higher percentage of cases more or less improved. Discounting the author's enthusiasm, it does not appear that the direct method here described offers any definite advantage over the other means of inducing malaria for therapeutic purposes, but it is as yet too early to judge; the period of observation is so far brief, and the number of cases treated relatively small. Dr. Colloudon insists that there is no risk, but the question is not so much whether the operation may be dangerous as whether it is necessary.

1. Treatment of Fractures in General Practice

Pocket Monographs on Practical Medicine. By W. H. OGILVIE, M.D., M.Ch., F.R.C.S. London: John Bale, Sons and Danielsson. 1932. Pp. 180. Two volumes. 2*s*. 6*d*. per vol.

2. Illustrated Primer on Fractures

Second edition. Prepared by the Coöperative Committee on Fractures. Under auspices of Section on Surgery, General and Abdominal, and Section on Orthopædic Surgery, in coöperation with Department of Scientific Exhibit of the American Medical Association. Pp. 63.

1. "Personal care and enthusiasm count for more than actual technique in the treatment of fractures," as Mr. Ogilvie remarks in his preface. Some definite instruction, however, has to be given to students and practitioners on the methods which extensive trial has established as likely to give the best results. This information is here given in a clear and concise manner. All the fractures ordinarily met with are covered in the small compass of 180 pages. The work is sure to be welcomed by students and by those practitioners, a dwindling number, who have the courage not to refer all their fracture cases to hospital. To the house surgeon these two small green volumes should be invaluable.

Criticism of individual methods of treating fractures is always easy enough, but there is very little here which cannot properly be taught to the uninitiated. In the pages dealing with fractures of the lower humeral epiphysis, the author has entered on dangerous ground in recommending splinting of the limb with the elbow at a right-angle. The position of almost full flexion, with supination to two-thirds of the full degree, has become established as the method of choice in most fracture clinics and seems a safer method to teach than splinting. Fractures of the femur are treated by skeletal traction with weight extension, a method now in pretty general

use. It seems a pity to say that shortening may be inevitable, and also to perpetuate the fallacy that traction from below the knee-joint is liable to stretch and weaken the ligaments of the joint. In future editions, Fig. 13, Vol. I., might replace Fig. 30, Vol. II., as illustrating more accurately the description in the text of the method of applying extension to the fractured femur. As regards the general principles of fracture treatment, operative treatment is properly relegated to a secondary position. The teaching of Böhler is followed in the use of the unpadded plaster splint, and of local anæsthesia. Revision of the arrangement and enumeration of the headings and subheadings in this section of the work would lead to easier reading. That is almost the only criticism we have to offer in an excellent monograph.

2. The second edition of this primer on fractures introduces four new subjects—compression fractures of the spine, fractures of the skull, active movements, and massage. The illustrations have been modified. The volume is still little more than an issue in book form of a folder illustrating methods of treatment. Much useful information is included, but the omission of important practical details prevents the work from being a real guide to anyone faced with the responsibility of dealing with a fracture from start to finish, or, for example, to one who has to apply extension for a fracture of the tibia and fibula, or a Whitman's plaster to the hip-joint. The length of time required for treatment is seldom stated and other important considerations are also neglected. The details of first-aid treatment, however, are excellently set out, and the book gives a good general idea of many of the principles which govern modern practice. There are one or two surprises, such as the illustration of a fracture of the tibia and fibula in extension with a straight knee-joint, and the treatment of fractures of the surgical neck of the humerus by continuous traction with the patient in bed. The text and the illustrations abound with legends: "Splint 'em where they lie." "The earlier the movement, the better the joint." "Do not try for crepitus." Most of these legends savour rather of propaganda than of the text-book; this racy style is understood to appeal in America.

Reminiscences of a Specialist

By GREVILLE MACDONALD, M.D. London: George Allen and Unwin, Ltd. 1932. Pp. 415. 16*s*.

Dr. Greville Macdonald, as the son of George Macdonald, met many distinguished people, and as a prominent specialist met many others. Out of his recollections he has constructed a long book which will have a personal rather than a general appeal; for the interest taken in such matters as Ruskin's marital affairs, or the Emperor Frederick's operative treatment cannot to-day attract public attention, while a considerable part of the book is taken up by purely domestic records. These will be a source of enjoyment to the author's immediate circle.

Journal of Pathology and Bacteriology

THE November number (Vol. XXXV., No. 6, pp. 817–996) contains the following papers: The Mouse-Pathogenic Bacteria (pneumococcus, *B. influenzæ*, &c.) of the Upper Respiratory Tract: their Relation to Acute Infectious Coryza, by L. Hoyle (Leeds). From a continuous examination of the bacteria of the nose and throat in more than 30 persons for two years, and a record of the occurrence of colds and catarrhs the author concludes that coryza has no specific bacterial cause and that many cases are associated with the pneumococcus and influenza bacillus.—The Specific Antibacterial Properties of Penicillin and Potassium Tellurite, by A. Fleming (London). Many microbes, especially cocci, are inhibited or killed by the substances in a filtered broth culture of the mould *Penicillium notatum*, which may be used with advantage to separate resistant species—e.g., the influenza bacillus among staphylococci. Penicillin-resistant species are generally sensitive to tellurite which thus has similar practical uses.—The Hepatic Lesions Associated with Eclampsia and those Caused by Raising the Intra-abdominal Pressure, by G. W. Theobald (London). Brief increases in abdominal pressure may so interfere with the blood-supply that they cause extensive liver necrosis; the liver lesions in eclampsia are probably the result of the convulsions.—Lysogenicity as a Normal Function of Certain Salmonella Strains, by F. M. Burnet (London). If a suitable indicator organism is used, it appears that a large proportion of strains of salmonella normally produce bacteriophage.—Extensive Melanism in the Skeleton of *Raia maculata*, by W. F. Harper (Dundee). The pigment is shown to be melanin.—Spontaneous Diseases Observed in 600 Monkeys, by R. W. Fairbrother and E. W. Hurst (London). A by-product of the authors' work on poliomyelitis, &c. They notice tuberculosis, dysentery, a cirrhotic pancreas, siderosis of the basal ganglia, "bodies" in the adrenals, &c.—Changes in the Testes of Rats kept on a Diet Deficient in Vitamin A, by M. M. Sampson and V. Korenchevsky (London). In carefully controlled experiments the seminiferous epithelium degenerates and disappears.—The Phagocytic Function of Leucocytes in Anæmia, by F. A. Knott and S. J. Hartwell (London). The function is much depressed in the Addisonian and aplastic types, but less in Witts's disease.—A Case Illustrating the Effects of Prolonged Action of Radium, by J. M. Ross (London). A needle slipped from the breast into the heart and remained there till the patient died with cardiac failure three years later. There was extensive injury to the cardiac muscle and smaller vessels and much fibrosis, and also an endothelioma of the liver.—Some Properties of Diphtheria Antitoxin in the Sera of Animals of Different Species, by M. Barr (London). An extensive technical inquiry into the proteids with which antitoxin is associated in different animals and its combining qualities.—A Functioning Tumour of the Islands of Langerhans, by W. G. Barnard (London). Repeated fainty attacks in a woman of 40 suggested too much insulin, and after death from comatose broncho-pneumonia a small tumour of the pancreas was found, composed of typical islet tissue.—Inflammation in Earthworms, by G. R. Cameron (London) (see p. 1229).—A New Culture Medium for the Production of Antigenic Streptococcal Hæmolysin, by E. W. Todd and L. F. Hewitt (London).—*Bact. paratyphosum* B Infection with Intestinal Lesions Restricted to the Colon, by R. Whitehead and R. W. Fairbrother (Manchester). The ulcers are commonly in the small or small and large intestine; the organism was fully identified.—Sarcoma and Carcinoma in a Guinea-pig, by C. C. and J. M. Twort (Manchester).—A Simple Method of Labelling Museum Jars, by L. W. Proger (London). With cellulose enamels and stencils.—Obituary notices, with portraits, of B. L. F. Bang and C. G. Schmorl, honorary members of the society.

THE price of the "Handbook of Bacteriology" (third edition), by Prof. J. W. Bigger, published by Messrs. Baillière, Tindall and Cox, which was reviewed in our issue of Nov. 5th (p. 1006), is 12*s*. 6*d*., and not as there stated.

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See also pp. 18, 28, & 29.

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THE LANCET

LONDON: SATURDAY, DECEMBER 3, 1932

THE TEACHING OF FRACTURE TREATMENT

THE surgery of the skeleton, which has for so long taken a back seat in the estimation of both students and teachers, is now showing renewed signs of competing successfully with the surgery of the abdomen for attention. A reflection of this renewed interest is seen in the prominence given to the principles of fracture treatment in examinations for surgical degrees, and in the recent issue of various text-books dealing with fractures as a specialty. The tendency to make broken bones outcasts from the voluntary hospitals is being checked, anyhow as far as teaching hospitals are concerned, for the responsibility of giving students and residents a better training in this most important branch of surgery is becoming generally acknowledged. It is natural that the present preoccupation with fractures should have given rise to a multiplicity of methods, but as far as the student is concerned the result has been somewhat confusing. Some surgeons, undoubtedly, hold still to open operation as the method of choice in many difficult cases; they will hardly believe that good results, in fractures of the femur for example, can be obtained by any other method. A greater number have been using the method of continuous traction, which owes its present high degree of efficiency to the technique elaborated in the base hospitals in France and elsewhere during the war. Recently, all our ideas on fracture treatment, at any rate on this side of the Atlantic, have been coloured and modified by the teaching of Prof. LORENZ BÖHLER, of Vienna. BÖHLER'S main principles are splinting by the unpadded plaster cast, applied during active reduction by traction, and worn till union is firm; the use of the limb from the beginning of treatment; and complete immobilisation of the joints above and below the fracture during the whole process of consolidation, massage being entirely discarded in the treatment. Of the two recent text-books on fractures reviewed on another page, that by Mr. W. H. OGILVIE adopts, in the main, the methods of BÖHLER, whereas the "Primer on Fractures," issued under the auspices of the American Coöperative Committee on Fractures, advocates continuous traction in most cases.

There is no doubt at all that traction methods, as described for instance by MEURICE SINCLAIR,[1] are capable of giving excellent results. The disadvantages have always been the continuous care and vigilance required. Once a fractured limb has been satisfactorily encased in plaster it may be possible to leave it alone for weeks. On the other hand, surgeons who are used to easy access to the site of fracture, which is one of the conveniences of treatment on a Thomas's splint, may hesitate to adopt any method which prevents them from inspecting and palpating the limb, and so controlling any tendency to minor displacements. The contrast in methods is most obvious when one considers individual fractures. Plating as a routine treatment for fractured femurs is still taught by some surgeons. The consensus of opinion is, however, in favour of some form of extension, with the limb slung free of the bed. Even here there is no uniformity in method. While SINCLAIR obtains his extension by tying the leg to the splint, and the splint to the upright, and raising the bed 10 in. or so, thus using the body-weight as the traction force, OGILVIE uses a direct weight extension to the leg, the body-weight being the counter pull. The point of fixation of skeletal traction is also a matter of dispute, some surgeons holding that traction must be from above the knee-joint, others that it can be taken equally well from the tibia. For fractures of the tibia and fibula there are the alternatives of continuous traction on a Thomas's splint, and immediate application of an unpadded plaster during active reduction of the fracture by some such apparatus as that described by WATSON JONES, followed by early ambulatory movement. The supracondylar fracture of the humerus still provides scope for controversy. While one text-book instructs that the limb should be splinted with the elbow flexed to a right-angle, and warns the student most earnestly against the position of full flexion, others give the most solemn exhortation against any form of splinting in these fractures. It is not politic, however, to ignore the possibility of recurrence of displacement after reduction, and therefore, if the splint is omitted, flexion of some degree is almost always advised, to hold the bone-ends in position. The criticism of the method of flexion, as advocated by Sir ROBERT JONES and others, seems to be rather unfairly based on the assumption that by "flexion" is meant the fullest degree of flexion obtainable combined with forced supination, a position that has nothing to recommend it. The elbow flexed to a degree that brings the hand under the chin, and with the forearm two-thirds supinated, is surely under as complete control as possible, and the pulse and the fingers are readily accessible. The advice given on treatment of Colles's fracture affords another example of the variation in teaching. The "Primer on Fractures" tells us to remove the splints after three days and then start massage and movements, whilst OGILVIE, following BÖHLER, would keep the wrist completely immobilised in plaster for six weeks, and allow active use of the hand from the start.

It is obvious that individual methods of applying extension, and details of this kind, are largely matters of personal choice; but there are points in the treatment of fractures on which the interests of the public seem to call for some uniformity of teaching. These include the questions: (1) whether

[1] "Fractures." Modern Surgical Monographs. London. 1931.

the use of the unpadded plaster cast is a safe method to teach to students; (2) how far early walking hastens the union of fractures of the leg; (3) in which fractures are continuous traction methods likely to give results better than other methods; (4) has massage, apart altogether from passive movements, still a part to play in the treatment of uncomplicated fractures? Comparative statistics on these questions would be difficult to obtain, but the lasting confidence of patients and their friends in the technique adopted by any individual surgeon depends to a great extent on the assurance that his methods are generally accepted by his colleagues. When the result is perfect restoration of function no criticism need be feared, but fractures do not always give satisfactory results however much care is taken. Sooner or later, if a limp remains, if weight cannot be carried without pain, or if traumatic œdema is troublesome, the patient will be pressed by his relatives to consult another surgeon. And if this second opinion confirms their prejudices—for example, in favour of or against massage—the patient may be convinced that his case has been mismanaged from the start. It is of real importance therefore that surgical teaching in this country at least should reach a greater measure of uniformity than at present obtains.

HOSPITALS AND MOTOR ACCIDENT PATIENTS

A PUBLICATION issued by the Central Bureau of Hospital Information[1] outlines a plan by which hospitals may improve their prospects of recovering the costs of treating patients who are the victims of motor accidents. It is claimed that the plan has already been adopted by several hospitals with satisfactory results. It involves, of course, the coöperation and consent of the patient. It is he who is the potential plaintiff in an action for damages against a negligent motorist. The payment of the hospital's charges for maintenance and treatment depends on those charges being included as part of the claim which the motorist or insurance company may be willing, or may be compelled by law, to pay. The situation therefore must be explained to the patient (or his relatives) as early as possible after admission to the hospital.

The Bureau's memorandum contains a suggested form of notice to be printed and furnished for the patient's information. The main feature of the plan is the establishment of a panel of reputable local solicitors who will act for patients under the "poor persons" procedure. If the patient happens to be a member of a friendly society or similar body and to be entitled by such membership to free legal aid in recovering damages, the society will naturally act for him and the hospital must claim its expenses through the society. In ordinary cases where there is no membership of a friendly society, and where the patient has not a solicitor of his own, the patient will be recommended to employ a solicitor from the panel. The solicitor, on looking into the facts, may come to the conclusion that the patient has no case for claiming damages. If so, there is nothing to be done until such time as the law is altered so as to award compensation to traffic victims irrespective of negligence. On the other hand, if the patient's claim is regarded as a good one, the solicitor will do his best to fight it to a successful finish and will, with the patient's consent, ask for a sum which will include the full costs of the maintenance and treatment in hospital. These costs ought to cover doctor's fees, X ray examinations, and any special treatments. The patient, if he falls in with the proposed plan, will have signed an undertaking to pay these costs (or a reasonable proportion of them) out of any sums recovered by him. This method has the advantage of eliminating the "ambulance-chaser" who takes up a plaintiff's case speculatively and recoups himself by deducting a substantial percentage from the damages recovered. As, however, the reputable solicitor does not act on speculative terms, it will be necessary sometimes to find money for minor expenses incurred in work done by members of the suggested panel. There will be the 10s. fee for the police report of the accident. If the solicitors take up a case, there will be some small sum due for office expenses, even where a settlement is agreed with an insurance company. If the case goes into court, there will be certain court fees. Moreover, since the lawyer (like the surgeon) is unable positively to guarantee the success of his operations, a sum ought to be held ready for legal expenses if the claim should fail. A careful estimate of all these liabilities, positive or prospective, should always be obtained from the solicitors beforehand. The hospital, if the plan is to work smoothly, may have to advance money to the patient for these purposes, and here there is the difficulty that it might be held ultra vires for a hospital to apply its general funds to such ends. To avert this awkwardness the memorandum advises the raising of a small special fund to meet the contingencies above described.

The proposed plan, be it noticed, is entirely outside the Road Traffic Act; any sum to be recovered by the hospital, therefore, is not confined to the statutory limit of £25 which the Act prescribes. Hospitals stand to gain by a better recognition of their claims and by a more responsible enforcement of the patient's legal rights. The Central Bureau seems confident that legal help of the right type will be forthcoming. It will be interesting to learn in due course how those hospitals have fared who have made trial of the plan.

[1] Memorandum. No. 54. From the Bureau, 12, Grosvenor-crescent, S.W.1. 3d. post free.

THE TONSIL PROBLEM

THE Committee on Local Expenditure, whose report is summarised on another page, is impressed by the different incidence of tonsillectomy in different parts of the country. Are we to suppose, the Committee asks in effect, that the health of the children varies so much that under one local

authority the number who need the operation is ten times as great as in another area? The question was raised from another standpoint by Dr. J. ALISON GLOVER and Dr. JOYCE WILSON at this year's annual meeting of the British Medical Association.[1] At the present time, they said, more than half the most carefully nurtured children in England are losing their tonsils—that is to say, the incidence of the operation is about four times higher among the well-to-do than among elementary school-children, who have at least as much tonsillitis. They stated their opinion that "a large proportion of the tonsillectomies now done in children are unnecessary, entail some risk, and give little or no return." This is a conclusion which pours fresh fuel on a controversy with which we have all become familiar. On one side it is argued that tonsils are now removed, by reason of fashion, on the slightest provocation; on the other it is urged that if there has been an increase of tonsillectomy the same is also true of many other operations.

"We understand," say the Committee, "that the trend of medical opinion is now definitely in favour of conservative treatment rather than operation, in cases where there is no apparent ill-health caused by the condition." This is probably true; but one has to remember that medical opinion has taken devious routes in the past. In his Semon lecture, delivered in London a few weeks ago, Prof. OTTO KAHLER, of Freiburg, reviewed some of the theories and changes of the last 40 years. At first, he said, it was thought that the tonsils were channels of infection and should be removed. Next it was believed that they were protective and should be preserved if possible. Again the tide turned, and they were extirpated as a remedy for general as well as local infections. A primary difficulty has been to decide what is their normal function. They belong, of course, to the lymphatic system, and like the appendix fall into the category of subepithelial lymphatic organs. But Prof. KAHLER is clear that they are not simple lymphatic glands—it seems they are not, for example, the site of malignant metastases—and that their function is not the production of lymphocytes, though their germinal centres may undertake it as a reaction against toxins. Experiments in his clinic lead him to think that they have no internal secretion, and even if they have some influence on development their removal evidently does no harm to human beings. G. SECCOMBE HETT[2] has shown that though the palatine tonsils are active during the first few years of life, the normal course is for them to atrophy gradually from then till puberty; while the pharyngeal tonsil atrophies even earlier. He also found that most mammals, including the lower apes, have healthy tonsils throughout life, but in the higher apes the tonsil is often unhealthy and full of organisms. It is possible, he thought, that they provide a secretion which aids digestion and by pouring out lymphocytes keeps the mouth and pharynx free from infection; and it is noteworthy that the act of swallowing causes them to empty their crypts. But there is so far little evidence of any digestive, antiseptic, or endocrine function in man.

From the practical point of view the problem is to decide whether a tonsil is unhealthy and, if so, whether it is responsible for symptoms. Sometimes the history provides the decisive evidence. Recurrent quinsies, for instance, are a sign of tonsillar infection, and will probably be cured if the tonsils are removed. Chronically unhealthy tonsils are often held responsible for fibrositis. Tonsils with deep crypts containing plugs of caseous pus may cause nothing more than slight irritation or may be responsible for acute attacks with adenitis; they must be regarded with suspicion, but it may be enough to wash out the crypts periodically and keep the tonsils as clean as possible, so that in time they atrophy normally. Microscopical evidence is not altogether satisfactory because streptococci are usually present and are therefore not much help in diagnosis, and because sections are usually taken after, not before, the operation is performed. In Prof. KAHLER'S opinion a definite indication for operation is the presence of leucocytic pus. Leucocytes, he said, are not found in tonsils at birth, or in those removed for size rather than symptoms. As is often remarked, the tonsil which projects is not likely to be so noxious as the one which is embedded, and a conspicuous non-septic tonsil may be doing little or no harm unless perhaps it obstructs breathing. As a celebrated laryngologist has put it, the ideal in operative treatment is the removal of "the tonsil, the whole tonsil, and nothing but the tonsil." Prof. KAHLER is strongly in favour of removal as opposed to any other measures, and in his able lecture he emphasised the necessity for completeness. Failure to remove any part of the capsule may result in reproliferation of lymphoid tissue, and the last state may be worse than the first.

[1] Brit. Med. Jour., Sept. 10th, p. 506; see also THE LANCET, Sept. 24th, p. 680. [2] THE LANCET, 1909, i., 457.

THE LEGALISATION OF VOLUNTARY STERILISATION

A Parliamentary Committee has been formed consisting of ten members with the object of promoting a permissive Bill to legalise the voluntary sterilisation of certain mental defectives. This Committee has circulated to the members of both Houses a brochure setting forth its aims. This contains a sober and well-balanced statement of the case for legalising the sterilisation of mental defectives, the text of the Bill, and a short memorandum which lays stress upon the essentially voluntary nature of the Bill. Though a defective is incapable of giving a valid legal consent he is frequently in a position to entertain an attitude favourable or unfavourable towards being sterilised. The Bill makes it impossible to sterilise a defective whose attitude is unfavourable, and the safeguards contained in the Bill include, besides the consent of the defective, the consent of the spouse, or parent, or guardian, and of the Board of Control; also the operation would have to be authorised by a judicial authority under the Mental Deficiency Act. Of these safeguards, perhaps the most important is the consent of the Board of Control, whose attitude in the past towards sterilisation has been cautiously unfavourable.

ANNOTATIONS

GROWTH-INHIBITING SUBSTANCES AND CANCER

EXPERIMENTS [1] reported in 1931 suggested that the parathyroid gland contains a hormone which inhibits the growth of animals and is not identical with Collip's parathormone, which acts on the calcium metabolism. This line of investigation has been followed up by M. H. B. Robinson and J. H. Thompson and the results have lately been published.[2] Two main methods of extraction are described, yielding preparations which when injected daily subcutaneously into rabbits and rats produce a very definite inhibition of growth as measured by the size and weight of the animals. The extracts are non-toxic and the point is emphasised that the treated animals were actually in slightly better physical condition than the controls. As there was no disturbance of the calcium metabolism the active principle appears to be different from parathormone. The injection of extracts of other organs prepared in a similar manner failed to affect growth. It is concluded that "an anti-growth factor exists in the parathyroid gland."

It has been suggested by Thompson that an anti-growth principle which is effective in a normal animal might also be effective against the growth of a malignant neoplasm. But when this suggestion has been tested experimentally and clinically such an effect could not be demonstrated convincingly. It is, therefore, pertinent to inquire into the real significance of these experiments on the growth inhibition of whole animals. Growth, in the biological sense, presupposes cell-division. An anti-growth principle should inhibit cell-division, and if it had this action it might reasonably be expected to inhibit the cell-division of a malignant neoplasm. But if this anti-growth factor inhibited cell-division, it should have this effect on the active cell-divisions going on in normal tissues such as the testis, the epithelium of the intestinal mucous membranes, the spleen and lymphoid tissues, where new lymphocytes are formed, and the skin, to mention only a few of the tissues in which growth—i.e., the formation of new cells—actively proceeds even in an adult organism. A growth-inhibiting factor should therefore produce lymphopenia, sterility, and lesions in the skin and in the intestinal mucous membranes. But since it is expressly stated that the animals were in good physical condition these general effects on growth cannot have been produced, and the term "anti-growth factor" is a misnomer. What has been measured in these experiments is the size and weight of the animals and these are certainly less than in the controls. The size and weight of an animal depend mainly on the size and weight of the skeleton. This is, in fact, strikingly shown in one of the figures in the paper, in which the skeleton of a treated rabbit appears over that of a control animal. It would appear, then, that the extracts act not on growth generally, but only on the growth of the bones. The results obtained by the authors would be none the less interesting if they should prove to be concerned with this more limited aspect of growth. That would also account for the fact that this "principle" has so far been found to be ineffective against the growth of malignant cells.

It is only fair to the authors to state that they have used an argument which is present generally current in physiological writings. The existence of growth-promoting hormones or vitamins is generally postulated when it is found that the size or weight of an animal increases more rapidly in the presence of a certain factor than in its absence. In almost all this work the conclusions drawn apply only to skeletal growth and have not been found to hold good for cellular growth generally. Many of the prevailing conceptions of so-called "growth substances" will have to be revised before the confusion existing on this subject is cleared up.

[1] Thompson, J. H.: Jour. of Physiol., 1931, lxxi., p. xvii.
[2] Ibid., 1932, lxxvi., 303.

WORM INFECTIONS IN SOUTHERN RHODESIA

Dr. W. K. Blackie of the London School of Hygiene and Tropical Medicine has reported [1] an eight months' investigation into the helminths of man in certain districts of Southern Rhodesia. The report covers the techniques which he used for the examination of urine, fæces, and blood, the incidences of infection so displayed, and his fruitful investigations into the free-living stages and intermediate hosts. As detected by the means used, the infections, in order of decreasing incidence, were with schistosomes, hookworms, and, rather unexpectedly, ternidens. Both the common blood flukes were present in all the districts in which adequate examination could be carried out; but though urinary bilharziasis is the more common form, the eggs of *Schistosoma hæmatobium* being found in a tenth to a quarter of over 2000 persons examined, those of *S. mansoni* were far from negligible, being detected in a fifteenth to a sixth of them. One instance of spurious infection with *S. mattheei* was discovered, the eggs being found in the fæces on one day only, the day after the man in question had enjoyed a meal of half-cooked ox-gut, for this fluke prefers the bowel of sheep, cattle, and baboon to the urinary tract of man; but in ten cases there was real human parasitism with the eggs persistently present in the urine, while in one the worms were recovered after death. A striking feature of the report is the fewness of blood flukes found in comparison with the gravity of the lesions displayed after death—in other words, the importance of the light infection.

Hookworm infection was detected in a twenty-fifth to a quarter of the stools examined by microscopical investigation of a centrifugal deposit from a fæcal suspension, yet Blackie reports that R. M. Morris, using D.C.F. in 1929, detected hookworm eggs in 80 per cent. of 92 Africans examined. Accepting Clayton Lane's conclusions [2] that to make egg counts in the hope of measuring the worm load of a community was a waste of time and money, these were not attempted, and it is the leisure so obtained which has permitted the carrying through of a mass of valuable investigation which has probably not been equalled in the time in a survey of this kind. The evenly oval eggs of *Ternidens diminutus*, resembling but larger than those of hookworms and probably often locally overlooked by reason of that likeness, were found in a twentieth to a sixth of about 1200 stools examined in certain of the districts concerned. Since a number of the infected were not normally resident in the areas in which the examination was made, it is probable that this infection is more

[1] A Helminthological Survey of Southern Rhodesia. No. 5 of the Memoir Series of the London School of Hygiene and Tropical Medicine. 1932. Pp. 91.
[2] THE LANCET, 1932, i., 741.

widespread than is at present evident. It occurs naturally in local monkeys and baboons, and the worm was found at one human autopsy.

The report covers a number of other infections and by it Dr. Blackie adds to the reputation both of himself and of the London School of Hygiene and Tropical Medicine.

ALKALOSIS IN THE TREATMENT OF PEPTIC ULCER

THE revival of the intensive alkali treatment of peptic ulcer has directed attention once more to the obscure, but by no means trivial, condition of alkalosis. In the medical unit wards of St. Thomas's Hospital during the past two years some 200 patients have been subjected to a régime which has included the daily administration of over 10 g. of soluble alkali, as bicarbonate and citrate of sodium. Fifteen patients displayed symptoms suggestive of alkalosis and in nine of these suspicion was confirmed by thorough chemical investigation. Dr. A. M. Cooke [1] has reported these cases in detail. The clinical picture of alkalosis is not at all sharply defined, but it is usually found that after about a week of alkali treatment the patient develops various complaints, of which the commonest appear to be headache, dizziness, thirst, anorexia with a special distaste for milk, abdominal pain, vomiting, and drowsiness. Mental irritability and delusions may also be observed and, in severe cases, coma and convulsions may supervene and even prove fatal. Tetany may or may not be present. On physical examination the most important point is that the patient looks ill, and as a rule he has a flushed, dehydrated face, a furred tongue, and blood-shot eyes. The blood shows a high pH, the plasma bicarbonate is increased at the expense of chloride, and there is also a considerable increase in the concentration of non-protein nitrogen and inorganic phosphate. The urine is increased in quantity and contains a little protein and a few casts. In severe cases lactic acid and acetone bodies may be present. The urinary excretion of chloride and ammonia falls considerably.

The gravity of the condition depends on the fact that the alkalosis seems to impair renal function, so that the chief mechanism for correcting alkalosis becomes disorganised and a vicious circle is established. It is therefore supremely important to recognise the condition in its earliest stages, especially as the only treatment consists in the negative measure of suspending alkalis. Administration of acid-forming salts does not abolish the symptoms, and may actually make matters worse. Even after alkalis have been suspended as many as ten days may elapse before the chemical changes in the blood disappear, and albuminuria may persist for several weeks. Alkalosis may also occasionally appear in patients who have received only the insoluble carbonates of bismuth, magnesium, and calcium. A second paper, by Drs. H. A. Rafsky, L. Schwartz, and A. W. Kruger,[2] throws additional light on the question of prevention. These workers studied a series of 93 cases of peptic ulcer. In 61 of these the dose of bicarbonate was increased gradually from 3·3 to 10 g., and sometimes to as much as 21 g. daily. Only one patient in this group developed symptoms of alkalosis. On the other hand, in a control group of only 12 cases treated by the original Sippy method, which involves the use of large doses (25 g.) of bicarbonate from the onset of treatment, definite evidence of alkalosis was observed in two patients. The remaining 20 cases exhibited either pyloric obstruction or gastric hypotony and were considered unsuitable for alkali therapy.

These two papers are timely reminders of the dangers which may follow the use of large or repeated doses of alkalis in the treatment of gastric ulcer, and, incidentally, of other diseases such as nephritis and pyelitis. It is clearly the duty of the physician supervising such cases to start with small doses of bicarbonate, and to be alert for early manifestations of alkalosis as the dose is increased. If untoward symptoms appear the treatment should be discontinued without delay, especially if the clinical suspicion of alkalosis is borne out by a raised blood-urea or a diminished excretion of chloride.

[1] Quart. Jour. Med., October, 1932, p. 527.
[2] Jour. Amer. Med. Assoc., Nov. 5th, p. 1582.

DEATH SENTENCE ON A BOY OF SIXTEEN

IT was maladroit of the Home Office to allow a situation to arise in which a sentence of death was lately passed at Stafford assizes upon a boy of 16, although there was upon the statute-book a law which prohibited the death penalty in respect of persons under 18. The Children and Young Persons Act, passed last July, contained a subsection which raised the minimum age for the death penalty from 16 to 18. The Act also contained the not uncommon provision suspending its own operation until some unspecified date in the future. The date was left to be appointed at the instance of the Home Office, and different dates might be appointed for different parts of the statute. Orders were duly made under this departmental power for bringing various parts of the Act into force at various dates; but the subsection raising the age limit for the death penalty is thereunder postponed until next April. Consequently the judge at Stafford had to take part in the ghastly mockery of sentencing a boy of 16 to be hanged, simply because it had not occurred to the Home Office that the subsection was an enactment which could and should be brought into operation forthwith. Certain parts of the Children and Young Persons Act might justifiably be delayed if administrative arrangements were not yet ready for giving effect to the changes which the Act introduces. To legislate in advance of available facilities is perhaps open to criticism, but in these days it is explicable. Where it is not a question of waiting for new buildings to be built or for a new organisation to be created, but merely of making a simple reform in recognition of a more advanced standard of humanity, there is no excuse for delay. Parliament indeed might well be more careful in delegating the power to retard the operation of its will. It is true that the boy was reprieved a few days after the sentence. It is true that there was never much likelihood of the death sentence being carried out. But that is all the more reason for avoiding the mockery of the most solemn formalities of criminal justice.

LOCALISATION IN SPINAL ANALGESIA

A NOVEL modification of the technique of spinal injection for analgesia and fresh views on the rationale of the method are supplied by Dr. L. Ronse [1] of Ypres. He has arrived at the conclusion, from experimental work with coloured solutions, that the currents of convection and of gravitation are the only obstacles to localising the injected anæsthetic. The temperature of the syringe and of the solution —even warming the syringe by the holding hand—

[1] Scalpel, Oct. 29th, p. 1323, and Nov. 5th, p. 1339.

are, he says, of such importance that the anæsthetic may be made to rise in the spinal canal simply as the result of this warmth. He states that by a process of injecting, withdrawing, and re-injecting (an elaborated barbotage which he calls brassage) three or four times and always including a bubble of air either in front of or behind the injected anæsthetic he is able to localise the anæsthetic effect. He gets, he says, an immovable wedge of anæsthetic fluid. Ronse maintains that some of the accidents with spinal analgesia are due to the production of too great pressure within the cerebral ventricles. In order to avoid this he advocates gentle injection and care that no large amount of air is admitted. He gives the details of a case in which collapse was due he believes to this excessive pressure; at any rate the patient was saved by rapid withdrawal of cerebro-spinal fluid.

ANGIOID STREAKS IN THE FUNDUS

CERTAIN streaks in the fundus oculi have been more or less of a puzzle to ophthalmologists ever since they were first observed and figured [1] by Robert Doyne in 1889. The so-called angioid streaks have been variously interpreted as old retinal hæmorrhages, folds or splits in the choroid, and congenital peculiarities. In 1923 Mr. Treacher Collins propounded a fresh hypothesis [2] that the streaks originate in subchoroidal hæmorrhages, the slow absorption of which takes place via the perivascular lymph spaces which enclose the short ciliary arteries composing the circle of Zinn and the branches proceeding from it. He demonstrated that the common distribution of the streaks corresponds closely to the anatomical distribution of these arteries, and he pointed out that their colour is what may be expected to appear after the deposition of hæmatogenous pigment. The retinal changes which often accompany these angioid streaks he attributed to the pressure of the subchoroidal blood clot causing ischæmia of the choroidal vessels and secondary changes in the retina. Mr. Collins's theory appears to be entirely satisfactory in that it places the site of the angioid streaks not in the retina but in the choroid. On the other hand, a point which we do not remember to have seen previously referred to, it does not provide an explanation of the fact that the streaks, when they are found to be present in one eye, are almost always also to be found in its fellow. This would seem to point to some general condition or possibly a constitutional factor in the causation of the condition. In this connexion an article by a Swedish ophthalmologist, Ester Grönblad,[3] is of considerable interest. She publishes notes of three cases seen at the Stockholm University clinic in which the condition of angioid streaks in the fundus of both eyes occurred in patients with a peculiar condition of the skin known as "pseudoxanthoma elasticum" and consisting of collections of minute papules of yellowish colour the confluence of which produces abnormal folds in the skin or exaggerations of normal folds. The histological basis of the condition has been found to be a degeneration of the elastic fibres in the cutis. The condition causes no symptoms and therefore, except when it occurs in exposed situations such as the neck, passes probably unnoticed, but the fact that it has been detected in connexion with angioid streaks in the fundus, not only by Dr. Grönblad but by three other observers during the last year and a half—the number of published cases being now ten—affords strong presumption that there is some connexion between these two conditions, both being in themselves decidedly rare.

The plates which accompany Dr. Grönblad's paper sufficiently demonstrate the pathological change at the basis of pseudoxanthoma elasticum. An opportunity to examine pathologically an eye in which angioid streaks have been noted with the ophthalmoscope must necessarily be very exceptional. When it does occur we may look for an addition to our knowledge of this uncommon condition. Meantime, the main conclusions reached by Dr. Grönblad may be borne in mind. These are that the underlying cause of angioid streaks is a degenerative process affecting the elastic fibres in the lamina vitrea, extending into the substance of the choroid, and identical with the degenerative process which affects the elastic fibres of the cutis in the disease known as pseudoxanthoma elasticum; that the streaks represent cracks or incipient ruptures in the lamina vitrea and probably predispose to typical ruptures of the choroid; that these cracks may have a causation analogous to that of the rents in the region of the macula often seen in cases of high myopia; that both skin affection and angioid streaks are manifestations of a systemic disease of the elastic fibres of the body in the causation of which not only acute infectious diseases may play a part but also heredity. It will be seen that Dr. Grönblad's thesis takes no account of Mr. Treacher Collins's hypothesis, but it does furnish a possibility of supplementing the latter where it is weak by pointing to the possibility of a general cause likely to affect both eyes.

[1] Trans. Ophth. Soc., 1889, ix., 128.
[2] Ibid., 1923, xliii., 273.
[3] Acta Ophth. Suppl., vol. x., 1932.

THE ROCKEFELLER FOUNDATION

IN a world where we are all looking anxiously at every penny, it is a relief to find an organisation which appears to command the miraculous purse of the legend. The very name of the Rockefeller Foundation suggests solidarity, and even in the midst of depression the annual report contains no graver threat of future economies than to say "at present, the keynote is the support of existing projects rather than the launching of new work." During 1931, in the international health division alone, the Foundation assisted the governments of 47 countries throughout the world, and the health administrations of 37 of the United States, in carrying on public health work; contributions were continued to the Health Organisation of the League of Nations, and in addition research into various diseases—including malaria, ankylostomiasis, and yellow fever—was carried on. The expenditure in this division has risen from $2,637,924 in 1930 to $3,096,361 in 1931. Work in other directions has been maintained; aid has been given to the Medical Research Council in this country for research in virus diseases and puerperal fever, to Columbia University for the study of the common cold, to the Institute for Psychiatric Research at Munich for research in neuro-histology, and to various other universities and centres of research in many countries. The scope of the Foundation also covers the natural and social sciences and the humanities, all of which have received support, sometimes financial, often in the form of advice and encouragement. It is heartening to read, under the section on the international health division, that "whatever may be said of industry and the economic situation, public health has not yet begun to suffer seriously." The aim of the Foundation is to see that the ground which has been conquered in the public health field is being held, and

that when times improve the work can go forward without the waste of years spent in regaining lost territory.

INFLAMMATION IN EARTHWORMS

"COMPARATIVE pathology" is generally as comparative as the interests of veterinarians will allow, and it is a real pleasure to see a modern worker returning to the objects made classical by the researches of Wharton Jones and Metchnikoff. In the current number of the *Journal of Pathology and Bacteriology* (p. 933) Dr. G. R. Cameron, of University College Hospital Medical School, publishes the results of a long inquiry into the methods of defence and reaction in earthworms. He has been particularly concerned with the cœlomic corpuscles, and has examined their powers of phagocytosis towards a variety of particles and a number of bacteria both in vitro and in vivo; they also take a large part in healing injuries to the body wall. The particulars are too abundant to quote in detail, but two general considerations emerge. The first is the predominant efficacy of phagocytosis and of the mechanism which produces phagocytic cells; it is the primæval mode of defence found in the lowest animals, and loses none of its importance in the higher vertebrates, where its anatomical basis is elaborated and differentiated, and where it works in coöperation with the antigen-antibody reaction. The second is that animals generally have several strings to their bow where foreign invaders are concerned—i.e., they have more than one way of getting out of difficulties. The earthworm is badly off for means of preventing their entrance; his cœlomic cavity is freely in communication with the exterior through the dorsal pores, and indeed always contains plenty of the bacteria of the soil in which he lives. But when organisms which are objectionable come in, they are got rid of altogether by expulsion through the dorsal pores and nephridia, or by being passed along through the septal perforations to the tail, which is then broken off and discarded, or they are eaten by the cœlomic corpuscles.

TUBERCULOSIS IN YUGOSLAVIA

IN this country, where notification of tuberculosis has been in force well-nigh 20 years and has had time to become stabilised, we may reasonably hope to see a fall in the number of cases notified annually, and should be disagreeably surprised to see an acute rise. In Yugoslavia, however, notification is still uncertain, and it is matter for congratulation, rather than regret, that the number of cases of tuberculosis diagnosed has risen from 154 in 1918 to 70,718 in 1930. Dr. Vasa Savitch, director of the State sanatorium at Topolsica, has made a careful study of the struggle against tuberculosis revealed by these figures. He points out that a scientific approach to the control of this disease is particularly important in Yugoslavia where medical practitioners are few and cases of tubercle are many, fostered as they are by unfavourable economic and social conditions. Under a law passed early in 1930 the State accepts a heavy share in this control, being responsible for instructing the public in all questions relative to tuberculosis and its propagation, establishing institutions for the treatment of patients free or at a minimal charge, supervising home conditions and mode of life of patients, reserving hospital accommodation for the isolation of tuberculous patients, providing a consultant service, opening sanatoriums and colonies, and founding schools for children predisposed to infection. Communities of more than 10,000 inhabitants are required by the same law to provide tuberculosis dispensaries. Workers in certain occupations have to produce a certificate declaring them free of open tuberculosis; these include wet-nurses, workers employed by butchers, bakers, cafés, hotels, pastrycooks, and hairdressers; foster parents accepting children into their homes, and persons employed in schools and institutions for children. Such a plan of supervision, if it can be enforced, should reduce the spread of tuberculosis considerably.

The practical spirit of the Yugoslavian Government is shown by the fact that, between the years 1918 and 1930, beds to the number of 1168 were distributed with the aim of securing partial isolation of patients, and no less than 18,180 spittoons. It may be observed from Dr. Savitch's tables that the bacteriological examination of sputums still lags behind clinical diagnosis; in 1930 the cases of tuberculosis diagnosed numbered 70,718, while only 12,295 examinations were made of sputum. It has proved difficult to obtain reliable statistics showing improvement in the death-rate from tuberculosis, but Dr. Savitch estimates that since 1918 the general death-rate has declined by 49·87 per cent., and the death-rate from tuberculosis by 30·35 per cent. Since 1920, when conditions were beginning to return to normal after the upheaval of the war and the influenza epidemic, the decline in the general death-rate has been 20·87 per cent., and in the death-rate from tuberculosis, 15·16 per cent. "During the past 12 years," he says, "125,811 human lives have been preserved from tuberculosis; this figure represents the biological equivalent of our sanitary progress." Nevertheless, he adds that in comparison with American standards, for example, the sanitary conditions in Yugoslavia still leave much to be desired. Attempts to control tuberculosis in the future, he believes, cannot be confined to measures of social hygiene; the disease can only be eradicated by discovering and treating cases early, thus preventing dissemination from the outset. He considers that an organisation for the early discovery of cases is needed, a body of experienced workers in the field, and a network of institutions for the treatment of cases as soon as they are recognised.

MR. PUNCH AT HOME TO DOCTORS

THE home of Mr. Punch is in harmony with his decorous image in bronze which stands in the entrance hall. The more surprising is it, then, to meet on the first-floor landing his rakish German ancestor. This travesty of our Mr. Punch is nevertheless a historic personage, leering, jovial, undoubtedly coarse; his descendant downstairs has learnt decorum and appears to have acquired almost too much dignity. We should probably be grateful that he has done what he can to prevent the medical profession from falling into a like sin. In the exhibition of prints depicting humorous situations between doctor and patient, at the *Punch* offices, we find that we are his debtors for nearly a century of friendly criticism. This collection was first displayed in honour of the centenary of the British Medical Association. The earlier jokes in the series seem curiously simple to-day, but their wood-cut illustrations by artists such as George du Maurier are still matchless. Many of the pictures provide records which have historical significance. In 1848 a young applicant for the post of parish doctor is being informed that he will receive £20 a year, and is expected to find his own "tea and sugar—I mean medicines." In

1865 medical women are lightly dealt with, and in 1873 vaccination from patient to patient is rightly condemned by the mother who did not wish "to be connected with the Joneses in any way." After observing a group of residents—and what noble, top-hatted residents we bred in 1887!—on the steps of a hospital, two young ladies are conscious of a vocation for nursing. Infant welfare work is foreshadowed in 1893 with the classical retort to well-meant advice of the mother who had buried fourteen. In 1909 there is a reference to the school medical service. Perhaps one of the best of the war jokes was that by F. G. Lewin (1917); the doctor, prescribing for a sore-throat asks, "Have you tried gargling with salt water?" and gets the reply, "I've been torpedoed six times."

But apart from the topical jokes there are many which are ageless. Among these is the picture of the strong-minded wife of a patient, drawn by Wilmot Lunt in 1909, "Well doctor, *I* say its influenza. What's your humble opinion?" And one which dates from 1880, "I'm afraid we shall have to tap him." "Oh, doctor, don't say that. Nothing was ever tapped in this house that lasted more than a week." A sad little joke comes nearly at the end of the series. A consultant is assuring his patient, who is given to talking to himself, that there is nothing to worry about. "Perhaps not," the patient answers gloomily, "but I'm such a damn bore." One joke was absent which certainly deserves a place among these medical classics, "But doctor, do you seriously advise me to drink tea before going to bed? A year ago you said it would be the worst possible thing for me." "Ah, dear lady, since then science has made great strides." The whole of "The Doctor's Dilemma," the longest and best joke ever made about the medical profession, is an expansion of this skilful compound of truth and misrepresentation.

BACTERIOLOGICAL STANDARDS FOR MILK AND ICE-CREAM

WHEN in 1923 the Ministry of Health decided to introduce the grading of milk they had to embark on the treacherous course of enforcing legal penalties for the infringement of standards based on bacteriological "counts." The curious result was that medical officers of health found themselves forced to prosecute in some cases the very firms which they knew were spending money and effort in trying to improve their milk, while freedom from such potential prosecutions could be obtained by refraining from any attempt to produce a high-grade milk. It was partly to investigate these and other anomalies that a joint meeting was held at the London School of Hygiene and Tropical Medicine, on Friday last, by the food group of the Society of Chemical Industry and the metropolitan branch of the Society of Medical Officers of Health, Prof. W. W. Jameson, dean of the school, being in the chair. Dr. Vynne Borland (M.O.H. for Bethnal Green) opened the discussion with a statement of the above problem, in the course of which he quoted figures from seven London boroughs, showing that from 7 to 44 per cent. of all samples of graded milk exceeded the required bacterial count standard. Prof. G. S. Wilson summarised the difficulties in making comparable counts, dependent as such counts were on a variety of variable factors such as the medium used, time between sampling and analysis, type of diluent, method of averaging, and, above all, on the method of counting objects such as bacterial colonies which were at the limits of naked-eye vision. He emphasised that absolute figures in bacterial counts gave a sense of fictitious exactitude in no way comparable, for example, to that of the chemical analysis of fat in milk, and that such counts were, in fact, liable to errors of 100 to 200 per cent. To take legal action on the result of a single count was therefore absurd, and was, in fact, seldom done. Bacterial counts, he said, were a yardstick which gave a rough indication only of the cleanliness of a milk, and only approached accuracy when organisms were present in small numbers such as 30,000 per cubic centimetre or less. The plate-count method had been borrowed from water analysis in which, owing to the unsuitability of water as a medium for bacterial reproduction, it was an excellent method. Unfortunately there was nothing to replace it at the moment, nor was there as yet any simple method of estimating tubercle bacilli suitable for routine use. The "*Bact. coli* count" also, was no more quantitative than the plate count, but the presence of *B. coli* was presumptive evidence of fæcal contamination. Mr. E. B. Anderson of United Dairies, Ltd., also emphasised the unreliability of plate counts from the distributors' point of view, and demonstrated various other anomalies under the Milk Orders, such as the fact that the farmer may not use chlorine compounds in the sterilisation of his utensils, whereas the distributor may do so, and that the pasteurisation counts need bear no relation to the original raw milk counts. He suggested that the chief advances had been, and were to be made, in the education of the farmer by the sanitary inspector and veterinary surgeon. Mr. D. H. Clayson, of J. Lyons and Co., gave an account of the precautions taken to ensure a low bacterial count in the manufacture of ice-cream. No difficulty was experienced in winter, he said, and in summer a high proportion of counts reached the standard of Grade A milk. There are, of course, no legal standards for ice-cream, and the need for control was shown by some figures supplied by Dr. Borland, the samples ranging from counts of 625,000 to 265 million per c.cm. In summing up a useful discussion, Prof. Wilson emphasised that safety is not synonymous with cleanliness. Severe epidemics have been caused by the highest grade of milk, and he urged that the campaign to produce clean milk and the campaign to produce safe milk should proceed along parallel lines and with equal vigour.

Sir Aldo Castellani has been appointed director-in-chief of the Ross Institute in succession to the late Sir Ronald Ross.

DONATIONS AND BEQUESTS.—The Huddersfield Royal Infirmary will receive £2000 under the will of the late Mr. J. Lumb, of Huddersfield.—By the will of the late Dr. J. M. Thorne, of Brockham Green, Surrey, the testator left, among other bequests, £500, his wearing apparel, linen and blankets, bedstead and bedding, to the Royal Medical Benevolent Fund; £400 and a £100 debenture to Epsom College; his surgical instruments to the Medical Missionary Association; £200 to the East Surrey Hospital, Redhill; £200 to the Brockham Green Nursing Association.—The late Miss Emma Bramwell, of London, left by will £400 to the London Hospital; £300 to the Elizabeth Garrett Anderson Hospital; £400 to St. George's Hospital; £400 to Westminster Hospital; £400 to the Seamen's Hospital Society; £300 to the Royal Waterloo Hospital for Women and Children; £400 to Charing Cross Hospital; £400 to the National Institution for the Blind; £400 to the Treloar Cripples Hospital, Alton; £200 to the Missions to Seamen; £300 to the Royal Free Hospital; and £300 to the Hospital for Consumption, Fulham.

SPECIAL ARTICLES

GENERAL MEDICAL COUNCIL

WINTER SESSION, NOV. 22ND–26TH, 1932

THE President announced that Mr. Michael Heseltine, C.B., had been appointed General Registrar of the Council from the end of the summer session, 1933, and also that, by arrangement with the Dental Board of the United Kingdom, Mr. Heseltine had been appointed Registrar of that body also.

The President reported that the Council's attention had been drawn by the Ministry of Pensions to the laxity with which certificates were given in connexion with applications for pensions, with the result that the State might become liable for large sums of money if great care were not exercised by the Ministry. This matter had been considered by the Penal Cases Committee, which had recommended to the Council that the Warning Notice be amended by the addition of a new clause under Section 1: "(*p*) In connexion with matters under the control of the Ministry of Pensions." This amendment was approved.

The Register: Restorations and Removals

The President announced that the Registrar had been directed to restore to the Register the names of John Joseph McCabe and Harold Foster Strickland.

The President also announced that they had directed the Registrar to restore to the Dental Register the names of William Patrick Donnelly, John Forbes McDonald Connar, and James Edgar Nelson.

The Council considered and acceded to a recommendation from the executive committee that the name of William Arbuthnot Lane be removed from the Medical Register at his own request, on the ground that he had ceased to practise. The University of London and the Royal College of Surgeons of England had stated that they had no objection.

Penal Cases reported by the Dental Board

The Case of Wilfred Henry Weeks, registered as of 42 Prince of Wales-road, Norwich, "Dentist 1921." Mr. Weeks had been summoned to appear before the Dental Board on account of a number of convictions at the Norwich Guildhall Police-courts for aiding and abetting in the consumption and sale of intoxicating liquor at non-permitted hours. There was also a conviction at the Lowestoft Police-court for the assault of a workman on a yacht which was being prepared for the respondent The Board had had before it documents proving the convictions and press-cuttings reporting the proceedings, and had recommended to the General Medical Council that the name of Mr. Weeks be erased from the Register.

Mr. Harper, solicitor to the Council, said that there was reason to believe that Mr. Weeks had gone abroad for good; he was not present, nor was he represented. After deliberation in camera the President announced that they had decided to direct the Registrar to erase the name of Mr. Weeks.

The Case of Walter Collier, registered as of 39 Upper North-street, E.14, "Dentist 1921." Mr. Collier had attended the inquiry of the Board into certain charges of permitting an unregistered person to practise in his name or in connexion with him. The facts had been established before the Dental Board by the evidence and the Board had recommended to the Council that Mr. Collier's name should be erased. Mr. Collier appeared and apologised for his faults, begging for another chance. After consideration in camera the Council announced that it had directed the Registrar to erase Mr. Collier's name.

Penal Cases adjourned from Previous Sessions

The Cases of Francis Patrick Kennedy, registered as of 730 North Circular-road, Cricklewood, N.W.2, L., L.M. 1913, R.C.P. Irel., L., L.M. 1913, R.C.S. Irel., and *Thomas Robert Sandeman*, registered as of The Howff, Kincardine-on-Forth, Fife, M.B., Ch.B. 1910, U.Edin., F.R.C.S. Edin. 1914.

These practitioners appeared before the Council a year ago on charges of having been convicted of drunkenness in charge of motor-cars and of negligent driving. The Council at that hearing found the charges proved to their satisfaction, but postponed judgment for a year, subject to the usual provisos. Both practitioners appeared at this session of the Council and tendered written evidence that their conduct had been satisfactory during the past year. The Council decided not to erase their names from the Register.

New Penal Cases

The Case of Thomas Coffey, registered as of 40 Hetherington-road, Acre-lane, S.W.2, Irish Conjoint, 1919, who had been summoned to appear before the Council on the following charge:—

"That you were on August 4th, 1932, convicted at the Manchester Police-court of the following misdemeanours—viz.: (*a*) Of obtaining on July 21st, 1932, £1 17*s*. and one bottle of sherry by false pretences. (*b*) Of obtaining on July 23rd, 1932, £2 17*s*. and one bottle of sherry by false pretences. (*c*) Of obtaining on July 25th, 1932, £2 by false pretences; and were sentenced to three months' imprisonment in the Second Division (concurrent)."

There was no complainant in this case.

Mr. Coffey did not appear in answer to his notice. After hearing the facts, the Council deliberated in camera, and the President announced that the Registrar had been instructed to erase the name of Thomas Coffey from the Register.

TWO CHARGES OF CANVASSING DISMISSED

The Case of Adam Hamilton, registered as of 20 London-road, Coventry, M.B., C.M. 1885, U.Glasg., and *Andrew St. Lawrence Burke*, registered as of Gosforth House, Coventry, L., L.M. 1895, R.C.P. Irel., L., L.M. 1895, R.C.S. Irel., who had been summoned to appear before the Council on the following charge:—

"That being registered medical practitioners and as the only medical officers of the Coventry Provident Dispensary you have by your agent or agents canvassed the patients of David Holmes, a registered medical practitioner, with a view to inducing them to cease to be patients of the said David Holmes and become patients of the said Coventry Provident Dispensary, and in particular: (1) Early in the month of November, 1931, by means of an agent, Miss Shakespeare, canvassed Mrs. Rhoda Perks, a patient of Dr. David Holmes. (2) In the months of October and November, 1931, and January, 1932, by means of an agent, Miss Shakespeare, canvassed Mrs. Rose Pilgrim, who and whose family were patients of Dr. David Holmes. (3) At the end of September, 1931, by means of an agent, Mr. Bonham, and in the presence of you, Andrew St. Lawrence Burke, canvassed George Southgate, a patient of Dr. David Holmes. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The complainant was Dr. David Holmes.

This case was adjourned from the summer session on the ground of the complainant's ill-health.

Mr. S. J. Harvey, instructed by Messrs. Sharpe and Pritchard, appeared on behalf of the complainant

and Mr. C. Davis, of Messrs. Bulcraig and Davis, represented the respondents.

Mr. Harvey explained that the applicant and the respondents had been members of the managing committee of the Coventry Provident Dispensary. The complainant had had about 900 patients under his charge, and the respondents had had 600 and 700 respectively. It was stated for the defence that the patients were the patients of the dispensary, which received the capitation fee, but he proposed to contest that view. The dispensary had been boycotted by the medical profession from 1911–18. In 1918 his client had brought an action against the British Medical Association for defamation, and had been successful. He believed that the dispensary was of inestimable benefit to the poor people of Coventry. At a general meeting in February, 1931, he had been asked to resign and had refused. A motion calling for his resignation had been put forward in March, 1931; Dr. Hamilton had left the room, and the voting had been equal, the Chairman giving the casting vote against Dr. Holmes. At a meeting in April, the chairman had proposed that Dr. Holmes should be dismissed, and it had been agreed to take a secret vote of members. The result had been ten votes for the dismissal and eight against.

Dr. David Holmes corroborated his counsel's opening. He said that there was no such thing as a patient of the dispensary. Cross-examined, he admitted that his dismissal had been noticed in the public press and that meetings had been called to consider it. Some 200 patients had followed him from the dispensary. On being shown a number of transfer forms he admitted having filled up some of them. He said that the patients had come to him and asked to be transferred. His real complaint against the respondents was of failure to observe the rule that the colleague, acting in the spirit of the profession, should come forward with a complaint instead of keeping it hidden. He had never known Miss Shakespeare (the collector) canvass while he had been an officer. The dispensary had a contract with the local insurance committee.

Mrs. Rhoda Perks, examined by Mr. Harvey, said that she had been a panel patient of Dr. Holmes's for six years, and that her daughter was a private patient of his. Miss Shakespeare had called for the usual monthly contribution and witness had told her that she was leaving the dispensary and going on to Dr. Holmes's own panel, taking her daughter. Miss Shakespeare had asked her to stay with the dispensary and had said that Dr. Holmes "had a darned fine cheek to take patients from the dispensary." Witness had replied that she was going of her own free will; if she had been to the dispensary and discovered that Dr. Holmes was no longer there she would not have remained one of its patients. If asked who her doctor was, she would have said Dr. Holmes.

Cross-examined, she admitted that whenever she had required treatment she had gone to the dispensary, because the doctors sat there. Her medical card said that she was on the list of the dispensary. She had consulted Dr. Burke for treatment for a bad leg the summer before, but had not been satisfied and had afterwards gone to Dr. Holmes. She admitted signing a request for transfer, saying that Dr. Holmes had told her the name of the secretary of the panel committee. In reply to a question by a member of the Council, she said that no names, such as those of Dr. Burke and Dr. Hamilton, had been mentioned in the conversation with Miss Shakespeare.

Mrs. Butcher, examined by Mr. Harvey, said that she had attended at the dispensary for 20 years and had chosen Dr. Holmes in preference to the others. She had always considered that he was her doctor. When Miss Shakespeare had visited her she had said that the family were not putting any more in the dispensary; that Dr. Holmes had left and that they followed him. Miss Shakespeare had asked her to reconsider her decision, but she had refused. She admitted in cross-examination that at the time Miss Shakespeare had called this lady had not known that witness was leaving the dispensary. She had informed Dr. Holmes of this conversation when he had visited her and asked her about it. In answer to the Legal Assessor, she said that she had been a subscribing member of the dispensary and her husband had been a panel patient of Dr. Holmes's, as she had been before she had joined the dispensary.

Mr. Davis submitted that he had no case to answer, as there was not a shred of evidence against his clients.

After consideration in camera the President announced that the Council had decided that the evidence adduced in support of the three charges was insufficient to substantiate them, and that the case was therefore dismissed.

The Case of Robert Miller, registered as of 77 Constitution-road, Dundee, M.B., C.M. 1889, U.Glasg., who had been summoned to appear before the Council on the following charge:—

"That being a registered medical practitioner, and on the panel of the Insurance Committee for the Burgh of Dundee, you have canvassed with a view to obtaining patients, and in particular on or about Nov. 1st, 1931, canvassed Mr. Peter Cummings and his wife, Mrs. Flora Cummings, patients of Dr. Alexander Frew Wood. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

This case was reported by the Department of Health for Scotland.

Dr. Miller attended in answer to his notice and was accompanied by Mr. G. G. Honeyman, counsel, instructed by Mr. Armstrong Barry, solicitor, of Dundee. Mr. Harper, solicitor to the Council, explained the procedure which had led up to Dr. Miller's appearance. A certain Dr. Wood had addressed a complaint to the Dundee Borough Insurance Committee and their clerk had duly transmitted it to their medical committee, which had decided that it was a case suitable for the Panel Committee of Dundee to consider under Section 43 of the Act. The Panel Committee had made a recommendation to the Department of Health which had directed that an inquiry should be held. At this inquiry the clerk to the Borough Insurance Committee had given evidence and as a result of the inquiry Dr. Miller's name had been removed from the panel. The Department had reported the case to the General Medical Council, but did not wish to take part in the Council's procedure. Mr. Harper said that he would call no witness but would put in a certified copy of the reports of the previous inquiry.

Mr. Honeyman said that he was somewhat taken aback by this announcement. Respondent had not been convicted in a police-court, and he had naturally supposed that the inquiry before the General Medical Council would take the usual form of considering the evidence for the charge.

The Legal Assessor replied that the Council had no power to enforce the attendance of any witness, to examine any witness on oath, or to compel the production of any document; it had, therefore, to act as it best could for the purpose of its inquiry. He understood that the Committee of Inquiry had

consisted of a Scottish King's Counsel and two doctors and that the respondent had been present. Mr. Honeyman objected that the report set out a summary only of the evidence and could be attacked on several points. The witnesses' evidence had contained discrepancies that went to the whole root of the matter. The Legal Assessor agreed that it would be better if the witnesses were present, but pointed out that Mr. Honeyman had the advantage of being able to call evidence to refute that which the Council had to call in place of direct evidence.

Mr. Harper then read the report of the Committee of Inquiry. The facts which the Committee had found proved were, shortly, that the respondent, on Nov. 1st, 1931, had proposed to Peter Cummings and his wife, Flora Cummings, patients of Dr. A. F. Wood, that they should join his own panel, offering them, as an inducement, to stand surety for the installation of electric light in their dwelling. The respondent had written on one of the cards "I agree to the transfer," and had told Cummings that he would have to get Dr. Wood to sign the statement. The Committee of Inquiry had removed the name of Dr. Miller from the panel.

In answer to a question by Mr. Honeyman, Mr. Harper said that the general charge of canvassing was not to be pursued.

Dr. Miller, giving evidence on his own behalf, said that on a very dark night in November he had intended to visit some patients known as Cummings, who lived in a new workmen's housing estate which was unfamiliar to him. He had been directed by some children to the dwelling of Peter and Flora Cummings, and had found them sitting in a room lit only by three candles, although the dwellings were fitted for electric light. When he had asked the reason for this, the husband had said that he had been unable to get anyone to give security, the amount of which was £2. The witness had told him to come to his house in the evening and he would arrange to meet Cummings in the corporation office and have his papers signed. Cummings had asked "Who are you?" The witness said that, being the best known doctor in the town and doing a good deal of public work, he had thought they knew him. When he had stated his name the wife, who had hitherto taken no part in the conversation, had asked him whether she could change her doctor. He had replied "certainly." She explained that they had been on the list of a Dr. Duff, who had died, and they had been put on the list of Dr. Wood, who lived too far away. The witness had explained that if they wanted to change immediately they must get Dr. Wood's signature; otherwise they must send a note to the Insurance Committee. He had, he said, a young partner who could take them. The husband had then directed him to the patients he had wished to see. His offer to find security had not been in any way connected with the matter of Mrs. Cummings's change of doctor; he would have fulfilled it whether there had been any change or not.

Mr. Harper put in the medical card, and the respondent admitted that he had written on it the words "I agree to this transfer." Asked in cross-examination why Mrs. Cummings should have gone round to Dr. Wood to ask if the latter would guarantee the cost of installing electric light, he said that he did not know and that he had only told her to approach Dr. Wood if she required to change her panel immediately. Questioned by the Legal Assessor why he should stand surety for a perfect stranger, he replied that he had seen his opportunity to show the man how he could help himself by giving up cigarettes and handing the respondent 6d. a week. He had shown the man that his candles cost him more than electric light. He had done the same thing for many people of the same class, to his loss. Some had been his patients, but none had become his patients afterwards. He felt very strongly on the subject of smoking, drinking, and gambling, and was always fighting against these habits in his patients and others. These persons had not, in fact, become patients of his, nor had they asked him to fulfil his promise.

The Council did not find that the charges had been proved to their satisfaction.

DRUNKENNESS IN CHARGE OF MOTOR VEHICLES

The Case of Aiden Joseph O'Sullivan, registered as of 59 Whetstone-lane, Birkenhead, Cheshire, L.A.H. Dubl. 1919, who had been summoned to appear before the Council on the following charge:—

"That you were convicted of the following misdemeanours—viz.: (1) On Sept. 26th, 1930, at the Victoria Law Courts, Birmingham, of being drunk while in charge of a motor-car, and were fined £10 and £2 12s. 6d. costs, or 21 days' imprisonment in default; (2) on Sept. 6th, 1932, at the Birkenhead Police-court, of driving a motor-car whilst under the influence of drink, and were fined £20 and disqualified for holding a licence for 12 months."

There was no complainant in this case.

Mr. A. J. O'Sullivan attended in answer to his notice and was represented by Mr. A. Parton Smith, solicitor.

Mr. Harper laid before the Council the two certificates of conviction and remarked that at the time of the first conviction the respondent had held an institutional appointment and had not been on duty at the material time, while on the second occasion he had written to the Registrar before being approached in any way. Mr. Harper also referred to an account of the convictions in the *Birkenhead News*. Mr. Smith called Mr. O'Sullivan and read three testimonials to his character; these were from a professor of medicine, the local tuberculosis officer and secretary of the local medical society, and an official of the St. John's Ambulance Brigade. They all spoke highly of respondent's character. The secretary of the Birkenhead Medical Association was still willing to sponsor him for membership and the officer of the St. John's Ambulance Brigade had refused to accept his resignation after the recent conviction. Mr. Smith pointed out that on the occasion of the first conviction the respondent had held an institutional appointment and lived in lodgings; he had been off duty from 6 P.M. to 9 A.M. The newspaper account of the trial had not indicated in any way that he was a medical man. Since the second conviction he had been a teetotaller, and he was prepared to give an undertaking should the Council so desire.

Mr. O'Sullivan expressed his regret to the Council and his determination that no such event should occur again.

Mr. Harper observed that he could not accept the suggestion that the Council was not concerned with what a medical practitioner did in his spare time.

After consideration in camera the President announced that the Council had found the charges proved. He observed that the Council did not sit to administer punishment, but to see that the Register was kept clean. Sentence on Mr. O'Sullivan would be postponed until the November session next year, subject to the usual proviso as to conduct in the meantime and the presentation of testimonials at that date.

The Case of Alexander Duguid, registered as of 136 Beeston-road, Leeds, M.B., Ch.B. 1904, U. Aberd., who had been summoned to appear before the Council on the following charge :—

"That you were at the Leeds Assizes commencing on July 7th, 1932, convicted of the following misdemeanours—viz.: (1) Of driving a motor-car whilst under the influence of drink; and (2) of driving a motor-car in a manner dangerous to the public, and were sentenced to four months' imprisonment in the Second Division on each charge, such sentences to run concurrently."

Mr. Duguid appeared in response to his notice but was not represented. Mr. Harper asked leave to amend the charge by adding two more convictions :

"(1) On Jan. 3rd, 1927, at the Leeds City Police-court, when respondent had been found guilty of being drunk when in charge of a motor-car and had been sentenced to three months' imprisonment, his licence being suspended for three years; (2) on Sept. 12th, 1930, when respondent had been found guilty of causing obstruction while in charge of a car and had been fined 30*s.* or 14 days."

Respondent had been notified of this change and leave was given.

Mr. Harper then drew the attention of the Council to the minutes of its meeting on Nov. 25th, 1925, when respondent had been before it on similar charges, referring to drunkenness on active service in 1917 and drunkenness in 1922 and 1925, when he had been sentenced to 10*s.* fine or seven days' imprisonment. Mr. Harper also produced a newspaper report of the 1927 case, and one of the 1930 case, and pointed out that respondent had been warned by the Registrar on two occasions. He also read the testimonials brought by respondent from his vicar, an alderman, a justice of the peace, and his own medical attendant. They all spoke well of his professional abilities and general character.

Mr. Duguid addressed the Council and, after deliberation in camera, the President announced that Mr. Duguid had been found guilty of infamous conduct in a professional respect and that the Registrar had been directed to erase his name.

The Case of Donald McGregor Stewart, registered as of 5 Waunwen, Nantymoel, Glam., Scottish Triple, 1917, who had been summoned to appear before the Council on the following charge :—

"That you were on August 20th, 1932, convicted at the Bridgend Police-court of the following misdemeanours—viz.: (1) Of driving a motor-cycle on August 11th, 1932, whilst under the influence of drink, and were fined £5 and your licence suspended for two years; (2) of driving the motor-cycle on August 11th, 1932, without due care and attention, and were fined 5*s.*; (3) of failing to stop when requested by a police constable on August 11th, 1932, and were fined £1."

There was no complainant in this case.

Mr. Stewart attended in answer to his notice and was accompanied by Mr. Pereira, instructed by Messrs. Le Brasseur and Oakley, acting in their private capacity.

Mr. Harper, laying the facts before the Council, explained that Mr. Stewart might not have been summoned on these three charges alone, but that his past record had been taken into account. Respondent had appeared before the Council in 1929 because of convictions for other acts of drunkenness in charge of a motor-car and the use of indecent language, and judgment had been postponed subject to the usual provisos. On his subsequent appearance in 1930 a further conviction had been laid before the Council and respondent had given a fresh assurance of good behaviour and a promise to become a complete abstainer. The Council had not, therefore, seen fit to erase his name.

Mr. Stewart, giving evidence on his own behalf, expressed his sincere regret for failing to keep his word.

After deliberation in camera the President announced that the charges had been proved to the satisfaction of the Council, but that judgment would be suspended, subject to the usual provisos, until the November session, 1934.

The Case of John Alexander Tolmie, registered as of 295 Anlaby-road, Hull, Scottish Triple, 1917, who had been summoned to appear before the Council on the following charge :—

"That you were convicted of the following misdemeanours—viz.: At the Hull Petty Sessions (1) On July 28th, 1925 (in the name of James Alexander Tolmie), of obstructing the highway with a motor-car, and were fined 21*s.*, or 15 days' imprisonment in default. (2) On Nov. 3rd, 1925 (in the name of James Alexander Tolmie), of obstructing the highway with a motor-car, and were fined 21*s.*, or 15 days' imprisonment in default. (3) On March 9th, 1926, (*a*) of failing to carry on a motor-car two lamps each showing to the front a white light visible from a reasonable distance; (*b*) of failing to carry a rear light; (*c*) of failing to sufficiently illuminate rear identification plate—judgment being respited in each case on payment of costs. (4) On Sept. 21st, 1926, of obstructing the highway with a motor-car, and were fined 42*s.* (5) On August 28th, 1928, of driving a motor-car to the danger of the public, and were fined £30, or two months' imprisonment and costs. (6) On July 7th, 1932, of driving a motor-car while under the influence of drink, and were fined £40, or three months' imprisonment, and costs, and disqualified for holding a licence for two years. At the Beverley (East Riding) Petty Sessions (7) On June 26th, 1926, of driving a motor-car in a dangerous manner, and were fined £3. (8) On Sept. 18th, 1926 (*a*) of being drunk while in charge of a motor-car, and were fined £35 and £5 2*s.* costs; (*b*) of driving a motor-car in a dangerous manner, and were fined £20."

There was no complainant in this case.

Mr. Tolmie attended in answer to his notice accompanied by Mr. Carthew, counsel, instructed by Messrs. Le Brasseur and Oakley, on behalf of the London and Counties Medical Protection Society.

Mr. Harper asked, and obtained, leave to amend the charge by adding :—

"At the Hull Petty Sessions (9) On April 14th, 1932, (*a*) of unlawfully on Jan. 25th, 1932, otherwise than during permitted hours, consuming in the Aviation Club intoxicating liquor contrary to Section 4 of the Licensing Act, 1921, and were fined 21*s.* and 21*s.* costs, or 15 days' imprisonment in default; (*b*) the like on Feb. 6th, 1932, and were similarly fined; (*c*) the like on Feb. 12th, 1932, and were similarly fined."

Mr. Harper laid the facts before the Council and handed in the certificates of conviction and respondent's letter of apology and promise to amend.

Mr. Carthew explained that respondent was no doubt an alcoholic addict, but that his addiction was partly the result of his war service abroad, where he had contracted malaria and sandfly fever. Apart from this failing, his conduct and work had been exemplary. After the last conviction he had voluntarily entered a home for inebriates, and the superintendent had written a testimonial describing him as an ideal patient. Respondent was still leading a sober life and was making the most strenuous efforts to re-establish himself in practice. His failing had never interfered with his professional work.

Mr. Tolmie, giving evidence, confirmed his counsel's statements and repeated his regrets and undertaking.

Miss Margaret Fawcett Shaw, a registered nurse, his secretary-dispenser, stated that she thought very highly of his work and that he was making a real effort to pull himself together. She had never seen alcohol of any kind in his house.

The Council deliberated in camera, and postponed judgment until the November session of next year, subject to the usual provisos.

ABUSE OF PROFESSIONAL RELATIONSHIP

The Case of Henry Blanchard Walters, O.B.E., registered as of The Lawn, Chudleigh, Devon, English Conjoint, 1904, who had been summoned to appear before the Council on the following charge :—

"That being a registered medical practitioner you abused your position by committing adultery with a Mrs. Easton, whom you had attended professionally, of which adultery you were found guilty by the decree of the Probate Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated Nov. 30th, 1931, and made absolute on June 6th, 1932, in the case of Walters *v.* Walters in which you were the respondent. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

There was no complainant in this case.

Mr. Walters attended in answer to his notice and was accompanied by Mr. Carthew, instructed by Messrs. Le Brasseur and Oakley, acting in their private capacity. Mr. Carthew explained that Mr. Walters had been a member of the London and Counties Medical Protection Society until he had ceased to practise.

Mr. Harper said that there was no complainant in this case and no witnesses would be called. The former Mrs. Walters had been unwilling to help in any way except that her solicitors had lent the day-books of the practice. The case was therefore based on the proceedings in the Divorce Court which had not been defended.

Mr. Carthew protested that the charge was based on the proceedings before the Divorce Court which alleged adultery in 1931. There was not a shred of evidence for any misconduct before that date and the defendant had given up practice a year before.

After consideration in camera the President announced that the Council had found Mr. Walters guilty of infamous conduct in a professional respect and had instructed the Registrar to erase his name from the Register.

CARELESS CERTIFICATION

The Case of John Joseph Fant, registered as of 11 Bridge-road, Battersea, S.W.11, Irish Conjoint, 1926, who had been summoned to appear before the Council on the following charge :—

"That being a registered medical practitioner you signed as anæsthetist a dental letter issued by the Prudential Approved Societies to J. Mealey, a member thereof, on Sept. 11th, 1931, showing extractions completed on Sept. 22nd, 1931, by one A. L. Heath, and that you signed the said letter for the purpose and with the intention that the same should be forwarded to the said approved societies in order to represent to them that you had administered an anæsthetic to the said J. Mealey on that date, whereas you had not seen or administered an anæsthetic to the said J. Mealey on that date or at all, such dental letter in that respect being untrue, misleading, and improper. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The complainants were the Dental Benefit Council.

Mr. Fant appeared in answer to his notice. and was accompanied by Mr. Carthew, instructed by Messrs. Le Brasseur and Oakley, on behalf of the London and Counties Medical Protection Society.

Mr. Harper laid the facts before the Council and called as witnesses Mr. Henry Stanley Herbert, secretary of the Dental Benefit Council, and Mr. Reginald Townley Edwards, an official of the Prudential Approved Societies, who confirmed the allegations set out in the charge.

Mr. Carthew frankly admitted the respondent's gross carelessness, but pleaded that there was no suggestion of fraud.

After deliberation in camera the President announced that they had found the facts proved, but, realising that no fraud had been intended, had not directed the Registrar to erase Mr. Fant's name. The President, however, read Warning Notice No. 1, and pointed out that by his carelessness Mr. Fant had lowered the standard of strict rectitude which should guide all doctors in the signing of such certificates, and urged him to take warning from his mistake.

IMPROPER RELATIONSHIP WITH A MARRIED WOMAN

The Case of Harold Burt-White, registered as of 114 Harley-street, W.1, F.R.C.S. Eng., 1926, M.B., B.S. 1924, M.D. 1927, U. Lond., who had been summoned to appear before the Council on the following charge :—

"(1) That being a registered medical practitioner in professional relationship with a married woman, one Mrs. A B, you abused such position by entering into and, notwithstanding warning by her husband and protests and requests from her not to do so, persisting unknown to him in maintaining an association with the said Mrs. A B of a secret and improper character. (2) That being a registered medical practitioner in such professional relationship as aforesaid, you falsely and maliciously accused to the said Mrs. A B and/or to her husband with a view to your own professional and other advantage or to prejudice the patient against them : (*a*) a registered medical practitioner of improper conduct towards a woman patient ; (*b*) a second registered medical practitioner of gross negligence and incompetence as a physician ; (*c*) a third registered medical practitioner of negligence and/or incompetence as a surgeon. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect. (3) That you were on Dec. 14th, 1931, convicted at the Marlborough-street Police-court of the following misdemeanours—viz., of using insulting words and behaviour (on which occasion Mrs. A B was accompanying you), and also of an assault upon a police officer, and were fined 40*s.* and £3."

The complainant was the husband of Mrs. A B.

Mr. Burt-White appeared in answer to his notice and was accompanied by Sir Patrick Hastings, K.C., and Mr. Walter Frampton, counsel, instructed by Messrs. Hutchison and Cuff, solicitors. The complainant, Mr. B., was represented by Mr. G. O. Slade and Mr. Colin Duncan, counsel, instructed by Messrs. Ernest Bevir and Sons, solicitors.

Mr. Slade said that Mr. B had married on Oct. 25th, 1923. He was now 45 and his wife 31 years of age. Since her marriage Mrs. B had suffered from a good deal of illness ; she had had an appendicectomy in 1927 and an operation for ovarian cyst in 1928. Of her three children the third alone survived. She had been attended in her first two accouchements by Dr. X, and both the children had died soon after their birth. She had first met the respondent in November, 1930, in the house of a friend, and he had become a fairly regular visitor to their flat. In February, 1931, Mr. B had decided not to call in Dr. X any further, the reason alleged being that in that month respondent had stated definitely that the first two babies had only been lost owing to the gross negligence and incompetence of Dr. X. At this stage Dr. O had been substituted for Dr. X as the family practitioner. The third child had been born by Cæsarean section performed by Dr. Z. The allegation against Dr. Y had been made by Mrs. B to her husband, and Mrs. B was not to be called as a witness.

At this point Sir Patrick Hastings intervened to say that the Council must surely instantly reject the hearsay evidence of Mrs. B if this important witness were not to be called.

Mr. Slade said that he would not press charge 2 (*a*), which was therefore withdrawn at this point.

Mr. Slade, continuing with charge 2 (*c*), said that in October, 1931, respondent had been asked what was really the matter with Mrs. B, and had said

that there was something radically wrong in the way the Cæsarean operation had been performed. The professional relationship was admitted by the respondent from May, 1931; there was evidence for it prior to that date in respondent's own statements. For the first four months the relationship appeared to have been quasi-professional, half doctor and half friend. In October, 1931, respondent had received a cheque for £52 10s. from Mr. B for an operation performed on Mrs. B on July 17th. The first rift had occurred on April 30th, 1931, the occasion being the first birthday of the surviving child. The next day Mr. B had written to respondent saying that his home was closed to cads, and he forbade respondent to call or to continue the acquaintance with Mrs. B until he had explained certain conduct. A meeting had taken place at Mr. B's office next day and unpleasant things had been said, but the result was that Mr. B came to the conclusion that he had perhaps made a mountain out of a molehill. Respondent declared at that time that he knew how happy Mr. and Mrs. B were, and had no desire to break that happiness, and that he had no feelings of affection whatever for Mrs. B. This, said Mr. Slade, was an absolute lie, as he would prove, but Mr. B had accepted the statement and written an apology in which he said that he had never had any suspicion of his wife or of any irregular conduct, but had been incensed by behaviour which seemed to him in bad taste. Two months after the date of that letter respondent and Mrs. B had occupied the same bed at the Thatched Cottage at Marlow. Mr. Slade made no allegation of adultery, he said, but had divorce proceedings been taken no jury could possibly have come to any conclusion but that adultery had taken place. The couple had been known at the cottage as Mr. and Mrs. White. Divorce proceedings had been commenced on April 18th or 19th, 1932, and the complainant had made arrangements with the post office authorities to have a duplicate telephone line taken to an address in Finchley-road, and a lady, who would be called as a witness and who had identified the voice of the respondent, had been employed to watch the instrument. Mr. Slade read extracts from shorthand notes of conversations which, he suggested, effectively rebutted the respondent's contention that the husband knew and approved of the friendship. Oct. 19th, 1931, was the last occasion when Mr. Burt-White had come to Mr. B's flat with his assent, and any professional relationship with his family or social relationship with himself had terminated on that day. A servant would testify that Mr. Burt-White had continued to call time and time again when the husband was away, and on Dec. 12th the husband had had to go to Paris, and that was the day on which respondent had been charged at the police-court with insulting words and behaviour and with assaulting a police officer. Complainant had left his wife at the time of instituting the proceedings, but she had severed her connexion with the respondent, and in October they had gone back to live together.

Evidence for the complainant was given by servants in support of Mr. Slade's opening statement.

COMPLAINANT'S OWN EVIDENCE

"Mr. B," examined by Mr. Slade, said that he was a solicitor and a commissioner for oaths. He confirmed counsel's account of the medical history of his wife, and said that he had ceased to engage the services of Dr. X at about the end of 1930 in consequence of statements made by respondent to the effect that he had maltreated complainant's wife in the delivery of the first two children, and that the two children need never have been lost if complainant had gone to a proper doctor; that Dr. X was a charlatan and guilty of gross negligence. Complainant had consequently called in Dr. O, who had attended him personally in the previous year. Respondent, he said, had also severely criticised the way in which the Cæsarean section had been done. He confirmed counsel's account of the incident of the birthday party.

In reply to the Legal Assessor, he said that respondent's relations with his wife had been semi-professional before March; she had not had any medical attendant during February after they had definitely decided to get rid of Dr. X. He would, however, describe respondent as her potential doctor after February.

In reply to Mr. Slade, he described how he had sent a cheque for 50 guineas, which he considered was to cover the operation fee and prior attendance. He had sent the cheque after a discussion with his wife, and had had a receipt. On May 1st, at the meeting at his office, respondent had said that he had no feeling of affection for Mrs. B and had remarked "I have not even examined her professionally." At the time he had had no knowledge of the Marlow or other visits. He had believed that his wife was going to spend the week-end at Marlow with the people who owned the cottage, but had not known that the respondent was also going to be a guest until after he had served his divorce petition. He had had no idea that respondent was in the habit of visiting his house frequently and in the evenings. He had not had the slightest idea that his wife had been in respondent's car on Dec. 12th; he himself had been in Paris on business.

Cross-examined by Sir Patrick Hastings, he admitted that his solicitors had drawn up a letter destined to be signed by respondent. This letter admitted behaving in a despicable and ungentlemanly manner and being with Mrs. B in circumstances which any reasonable person would consider suggested adultery. It also admitted that he had told her that he loved her and led her to believe that he would marry her if she were divorced as a result of his association with her. It promised that in consideration of Mr. B's dropping the proceedings for divorce respondent would pay all possible costs incurred by himself and Mr. B, including costs between solicitor and client and the cost of supporting Mrs. B while proceedings were being taken. If respondent should break that agreement he would pay the sum of £5000 to a charity designated by Mr. B. The letter added that if respondent did not pay the sums agreed, Mr. B would at once be at liberty to report the matter to the General Medical Council if he so desired.

Sir Patrick Hastings suggested that on consideration of receiving costs which he could not possibly have obtained in the divorce court, Mr. B had promised not to lay the facts before the General Medical Council and that this document amounted to blackmail. Mr. B did not admit that it amounted to blackmail and said that he had objected to certain clauses. He was, however, unable to produce any documentary evidence showing that he had attempted to amend it. He denied that the document would ever have been used as a bargain. He would not have been a party to an agreement that contained that clause about the General Medical Council. He had withdrawn his divorce petition within 24 hours of respondents refusing to touch that letter. He had for a long time believed that his wife had actually committed adultery,

but had not believed it at the time when he had withdrawn his petition. He admitted that he was the only person who had made any suggestion that the respondent had alleged incompetence against Drs. X and Z. There had been no witness to those allegations. He agreed that respondent had never sent in a bill and that the only payment ever made had been the 50 guineas, which had not been suggested by respondent but by Mrs. B.

Re-examined by Mr. Slade, he agreed that if the letter were a disgraceful document his solicitors must have been a party to it. His wife had been entitled to one-fifth of their joint incomes as alimony *pendente lite* and she had filed a petition for this. The proposed letter forewent the right to damages but sought to recover moneys which he had had to pay. He had spent between £200 and £250 on his detection work. A blackmailer would not have insisted that the money went to charity. He had persistently refused to take any money. The settlement had not been signed because he had heard through an intercepted telephone conversation that respondent had accused him of blackmail and unless that foul accusation were withdrawn he had entirely refused to come to any agreement.

Sir Patrick Hastings interposed that he had never heard of any suggestion of blackmail by the respondent, nor had the respondent himself nor the respondent's solicitors.

After a number of questions by the Legal Assessor, witness said that the document had been drawn up by his solicitors without his specific instructions, but he had seen it before it had gone to Messrs. Hutchison and Cuff; he did not know when it had gone to respondent. He had issued a writ for slander against a person who had said that his petition had been issued for purposes of blackmail.

Sir Patrick Hastings read a letter from the respondent to his solicitor saying definitely that he declined to sign the letter of confession and apology.

Evidence was then given by a detective as to watching Mrs. B and the respondent, and by the police as to the events resulting in a conviction at Marlborough-street Police-court.

THE DEFENCE

Mr. Burt-White, called by Mr. Frampton, said that he had met the B's in December of 1930, and the acquaintanceship had ripened into close friendship. He had never heard of Dr. X otherwise than through them and he had never at any time attributed negligence to Dr. X. Dr. Z he knew professionally, and held in the highest esteem. He had never heard of any of the complaints brought against him until he had seen the statutory declaration prepared for these proceedings. He had no reason whatever to suppose that Mr. B objected to, or was ignorant of, his visits. He had made no entries of his professional advice to Mrs. B, as he had not regarded it as a professional matter, and had never intended to charge. Mr. B had never at any time forbidden him the house or forbidden him to attend his wife. He had been invited to Marlow by a Mr. H, a member of a well-known firm of solicitors known to Mr. B. At the time he was asked he had not known that Mrs. B was to be present. He had slept on the settee in the hall and had not undressed completely, as there were no bedclothes. He had been extremely uncomfortable, and had risen about 6.30 A.M. About 7 A.M. he had heard Mrs. B knocking, and had gone into her room to see what was the matter. She told him she had had a hæmorrhage and felt "rotten." He gave her some aspirin and from that time was in and out of the room to help her in any way he could. There had been no concealment whatever. He had never at any time committed adultery with Mrs. B. He had certainly had conversations with Mrs. B about the divorce proceedings, and had driven her about in his car. He had refused to sign the letter of admission and apology in its original or its modified form, and on the day of his refusal divorce proceedings had been abandoned and papers had been lodged with the General Medical Council. He explained the police-court episode to the General Medical Council after this incident, and had heard no more about it.

In reply to the Legal Assessor, the respondent said that he had been Mrs. B's friend throughout and not her medical adviser. He agreed that between April and October he had acted in a medical capacity and did not know whether or not she had had any other medical attendant at that time. He had regarded the 50 guineas as a gift, comparable with the gift given by a friend or a medical patient when operated on for nothing.

Counsel then addressed the Council, and after deliberation in camera the President announced that the charges of defamation of fellow practitioners had not been found proved to the satisfaction of the Council; that the charge relating to the police-court episode had been found proved, and that the first charge had been found proved. The Council had found Mr. Burt-White guilty of infamous conduct in a professional respect and had instructed the Registrar to erase his name from the Register.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 19TH, 1932

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 16 (last week 23); scarlet fever, 2329; diphtheria, 1051; enteric fever, 85; acute pneumonia (primary or influenzal), 915; puerperal fever, 37; puerperal pyrexia, 83; cerebro-spinal fever, 21; acute poliomyelitis, 16; acute polio-encephalitis, 5; encaphalitis lethargica, 5; continued fever 2 (Wigan, Nuneaton); dysentery, 21; ophthalmia neonatorum, 63. No case of cholera, plague, or typhus fever was notified during the week.

Of the cases of enteric fever 38 were notified in the three Ridings of Yorkshire—namely, in the East Riding, 2 (Norton R.D.); in the North Riding, 28 (Malton U.D. and R.D.); in the West Riding, 8 (Bradford 2, Doncaster 2, Leeds 2, Adwick-le-Street U.D. and Kiveton Park R.D., (each 1).

The number of cases in the Infectious Hospitals of the London County Council on Nov. 22nd-23rd was as follows:—Small-pox, 59 under treatment, 1 under observation (last week 66 and 6 respectively); scarlet fever, 2126; diphtheria, 1810; enteric fever, 12; measles, 213; whooping-cough, 396; puerperal fever, 17 (plus 7 babies); encephalitis lethargica, 230; poliomyelitis, 6; "other diseases," 158. At St. Margaret's Hospital there were 12 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In 117 great towns, including London, there was no death from small-pox, 1 (1) from enteric fever, 13 (1) from measles, 4 (1) from scarlet fever, 9 (0) from whooping-cough, 41 (10) from diphtheria, 42 (15) from diarrhœa and enteritis under two years, and 45 (5) from influenza. The figures in parentheses are those for London itself.

Cardiff reported 4 deaths from measles, Wigan, Birmingham, and Wolverhampton each 2. Diphtheria accounted for 4 deaths at Hull and at Liverpool, 3 at Acton.

The number of stillbirths notified during the week was 268 (corresponding to a rate of 45 per 1000 total births), including 44 in London.

ECONOMY IN THE SOCIAL SERVICES

REPORT OF THE COMMITTEE ON LOCAL EXPENDITURE

IN September, 1931, a circular letter was addressed by the Ministry of Health to local sanitary authorities asking them to subject to careful and detailed scrutiny the whole field of their expenditure, examining for example whether full value was being obtained for money spent, what savings could be made in the administrative machine in all its branches, and to what extent development of any services could safely and properly be slowed down until better times. Similar circulars were sent by other Ministers as to limitation of expenditure on roads and as to economies in education. In the light of these letters many authorities devoted much attention to reducing or reviewing the possibilities of reducing their expenditure. The Government being dissatisfied with the progress made invited the coöperation of the London County Council, the Metropolitan Boroughs standing joint committee, and the main central associations of local authorities to consider the whole field of local expenditure, and make recommendations at the earliest possible date for ensuring reductions in expenditure, irrespective of whether this was defrayed from Exchequer grants, rates, or other sources. In response to a letter from the Chancellor of the Exchequer, dated July 1st, 1932, a committee was appointed made up of representatives as follows:—

London County Council	2
Metropolitan Boroughs Standing Joint Committee	1
County Councils Association	3
Association of Municipal Corporations	3
Urban District Councils Association	2
Rural District Councils Association	1
Association of Education Committees	1
Welsh Authorities	1

This committee chose as its chairman Sir William Ray, M.P., one of the L.C.C. representatives, and its report was issued last week (Cmd. 4200. H.M. Stationery Office. 2*s.* 6*d.*). A similar committee was set up for Scotland, with Lord Lovat as chairman, and reported at the same time (Cmd. 4201. 2*s.* 6*d.*).

The English committee resolved itself at the outset into six subcommittees and was thus able to proceed simultaneously with the examination of education, housing, public health, public assistance, roads and bridges, and the agricultural services. Some of its recommendations are put forward as measures of retrenchment rendered necessary by the financial exigencies of the present time; others on their merits as permanent measures of economy which can be carried out without detriment to the services to which they apply, or with positive advantage both in cost and in efficiency. To give effect to a number of them amending legislation will be necessary. It was represented to the committee that there are some fields where from the national point of view—for example, the effect on general employment—curtailment of local authorities' activities would be the reverse of true economy; that in some directions—particularly in connexion with building and public works—the repeated calls for reduction in public expenditure were being regarded as an argument against expenditure of this kind by industrial undertakings and private individuals. Considerations of this nature were disregarded as outside the scope of reference.

"We wish, however, to express the opinion that economy in national and local expenditure, if it results as it should result, in reduction of the burden of rates and taxes, will not only set money free for the development of trade and industry, but by removing anxiety lest even greater burdens should be imposed, will also stimulate business enterprise and encourage private individuals in wise expenditure."

This statement is made without reserve by all the signatories to the report.

We only attempt here to summarise, under the various headings, such of the suggested economies as have a more immediate bearing on medical practice.

Education: the Under-Sixes

The committee turned down a proposal that the lower age of compulsory school attendance should be raised from 5 to 6. In the first place it did not believe that there would be any appreciable fall in the number of children attending school if the age were raised. Economy could only be achieved by forbidding children to attend school before the age of 6, and such a measure the committee considers open to grave objection for the following reasons:

(*a*) In urban areas where the mothers go out to work hardship would be caused by refusing to allow the children to attend school until the age of 6, or if some alternative provision were made—e.g., in creches—the saving would be greatly diminished.

(*b*) The taking of children into school at the age of 5 is desirable on national grounds of health and welfare. In a town almost the only place for children not in schools is the streets, which under modern conditions are dangerous to children by reason of the traffic.

It is clear, the report continues, that between the age of 2, when a child passes out of the care of the maternity and child welfare service, and the age of 5, when he first comes under the care of the school medical service, there is a marked deterioration in the health of the child population, due partly to mismanagement on the part of the parents, and partly to adverse conditions of living, such as bad housing. The recovery of the ground lost in this gap of three years is the first task of the school medical service, and to increase the gap would only aggravate the deterioration and make the task of this service more difficult.

THE SCHOOL MEDICAL SERVICE

In considering the special educational services the committee was struck at once by the variation in costs as between different areas. An analysis of figures for 12 local education authorities shows that the cost per unit of average attendance may be as high as 21*s.* 1*d.* or as low as 4*s.* 1*d.* for the school medical service, and as high as 20*s.* 7*d.* and as low as 1*s.* for special schools. These differences it finds very difficult to explain, even after making allowances for the unreliability of the figures for comparative purposes, and for the varying stages of development of the service. For example, there appears to be exceptional variety in the speed with which medical and dental inspections are carried out in different areas, and in the amount of work performed in dental sessions. A detailed and far-reaching inquiry by a central authority into the whole of the school medical service, it considers, is now required. Since the service has been in operation for 25 years, and hitherto no formal inquiry has been undertaken to review the progress made, and to determine how far the machinery is working efficiently, an investigation of this kind would be opportune, apart from the present need for economy.

"We have seen enough in the figures we have obtained to feel certain that the investigation will have the effect of obtaining better service from the existing expenditure, and it may be also that an actual reduction in expenditure could be obtained without any impairment of the service, and merely as a consequence of more efficient working."

Remark is also made on the discovery that the unit cost in medical officers' salaries may range from

5*d.* to 1*s.* 11*d.* per inspection, and the figures showing the varied number of inspections per session are equally remarkable. Pending inquiry the committee recommends that special inspections (and treatment) should not be limited to the time of the school session.

In secondary schools there should be only one routine inspection every year, special inspections remaining as at present.

DENTAL WORK

Investigation into statistics of the average number of inspections and treatments per session carried out by school dentists in various areas has revealed discrepancies as remarkable as those shown under medical inspection, although the figures appear to the committee to be more reliable. In county areas the number of children inspected per session varies (in the instances examined) between 50·8 and 89·7, and in urban areas from 35·8 to 200·1. The number of children treated per session varies similarly, ranging in county areas from 2·8 to 10·9, and in urban areas from 2·7 to 14·0. The figures do not suggest that a low number of children treated per session can be explained by an unusual amount of work done on each treatment. It would be well, the report suggests, to have drawn up for the guidance of school dentists a schedule indicating in some detail what points should be looked to in dental inspections, and another indicating in detail the different lines of treatment to be adopted in different circumstances. Some measure of this kind is needed to ensure that expensive methods are not adopted unless necessary.

TONSILS AND ADENOIDS

The committee has been impressed by the great differences between authorities with regard to the number of operations carried out in proportion to the school population of the respective areas. Under the arrangements made by one particular authority (not unique in this respect) the number of operations performed has for some years been 4 or 5 per cent. of the average attendance which means that of all children leaving public elementary schools in this area about 40 per cent. will have been operated on. Other authorities register only 1 per cent. or less.

"It is difficult to believe that these discrepancies are due merely to differences in the incidence of disease, and there seems to us to be reason to think that in some areas recourse is being had to surgical treatment with unnecessary frequency. Since the cost of an operation may be anything up to 2 guineas this is a serious matter financially.

"We understand also that the trend of medical opinion is now definitely in favour of conservative treatment rather than operation, in cases where there is no apparent ill-health caused by the condition, and we therefore suggest that instances in which a proportion of operations above the average is performed under an authority's scheme should be investigated by the Board of Education, to ascertain whether the unusual rate is justified by unusual incidence of disease."

The number of operations performed in 1931 under arrangements made by local education authorities in England and Wales represented 1·7 per cent. of the average attendance; if this proportion were reduced to 1·5 per cent. the annual saving, it is stated, would be approximately £15,000. Some hospitals charge different fees to different authorities for the same services—a matter which the committee considers worth investigation.

SPECIAL SCHOOLS

A steady drop in the incidence of deafness and blindness among children of recent years explains the comparatively large number of vacant places in the residential schools for blind and deaf children. In March last the total accommodation in schools for the blind was 1924 places and the number of vacancies 299; in schools for deaf children the total accommodation was 2731 places and the number of vacancies 561. The committee sees here an opportunity for the closure of some schools in order to redistribute the children in the remaining schools, which should reduce the present cost of maintenance, which amounts to about £72 a year per child.

While the cost of educating a normal child in a public elementary school is £12 12*s.* a year, the cost of educating a mentally defective child in a day special school is about £23 a year, and in a residential school £60 to £70 a year. Reorganisation of elementary schools on the lines of the Hadow report has made it possible to provide for children of the same age but of different capacities, and the committee suggests that certifying medical officers, in interpreting the words of the Education Act, 1921, should bear in mind the provision now made in the reorganised schools for lower-grade children. Were this done it believes that a number of children at present sent to special schools could be taken, in the towns at least, into the lowest grade classes of the reorganised schools. In the rest of the country the amount of accommodation available for those children who, even when full use is made of the facilities in reorganised schools, cannot profit fully from public elementary school training, is perhaps less than is necessary for the numbers, and the committee agrees that it might be desirable in normal circumstances to increase the provision.

"The present time, however, when expenditure on the education of normal children is being severely curtailed, is not opportune for an increase on the already heavy expenditure on the education of mentally defective children, and we regret, therefore, that in present financial circumstances we must recommend that further development in this direction be postponed."

COST OF TREATMENT AND SCHOOL MEALS

It is the statutory duty of every local education authority providing treatment to recover the cost, or part of the cost, from parents wherever possible; authorities differ in interpreting this duty or in the vigour of their efforts to carry it out. Of two cities in not dissimilar circumstances one recovers nearly £2000 from parents in a year, whereas the other, although half as large again, recovers only £400, while quite a number of areas recover merely nominal amounts.

With regard to recovery from parents of the cost of meals, a similar state of affairs prevails: while one county recovers £27,000, another only £218, another gives £1 as the amount recovered; in urban authorities there are similar variations, sums ranging from £2400 to £17 and £3 being obtained. A large number of authorities recover nothing, although their expenditure on provision of meals is substantial.

"This is a point requiring investigation with a view to increasing the amounts recovered, and although the cost of recovery is admittedly high, we think that the result on balance will be a net reduction in the expenditure from public funds."

SCHOOL NURSES

It had been suggested to the committee that the payment of school nurses should be reviewed and compared with the salaries paid to hospital nurses. The report however states:

"We consider that the lower salaries of hospital nurses furnish no argument for a reduction in the salaries of school nurses since hospital nurses receive other emoluments—e.g., accommodation, food, &c.—in addition to their salary, while school nurses do not; further, the work of the school nurse is less attractive than that of the hospital nurse, and higher salaries are therefore required to obtain recruits; and finally, even with the existing salaries, there is a shortage of supply, and a reduction of pay would only serve to

increase local education authorities' difficulties in obtaining school nurses."

RESEARCH AND INVESTIGATIONS

From the beginning of school medical inspection the medical department of the Board of Education have pressed upon the local medical staffs the importance of undertaking research work. The report quotes here from various annual reports of the Board's chief medical officer. In response to this stimulus local school medical staffs have prepared hundreds of research reports, and they are still being compiled at the rate of about 100 per annum.

"In such a subject as preventive medicine the need for continued research cannot be challenged, indeed no responsible man would wish to challenge it, but it is a question whether time and expense could not be saved by an extension of the principles of coördination into the field of local school medical research. In the list of local researches appended to the annual report of the Board's chief medical officer the same subjects constantly recur, an inevitable consequence if the officers of each separate local service are to be left free to conduct special investigations at any time and on any subject within the sphere of their professional work which interests them."

The committee recommends that special researches, as distinct from compilations based on evidence obtained in the ordinary course of medical inspection and treatment, should not be initiated without prior reference to the medical department of the Board.

"We consider that under present financial conditions the principal object of any local research work should not be the alleviation of the effects of routine inspection and treatment upon the officers concerned, but that some useful extension of medical knowledge should be looked for."

Housing and Slum Clearance

The committee recognises that for the work of slum clearance, which must continue to be undertaken by local authorities, a subsidy is still needed, but it recommends a substantial reduction in the existing rates of subsidy having regard to the fall which has taken place since 1930 in the cost of building and the price of money. It considers, however, that the time has come when the normal provision of working-class houses (by whomsoever undertaken) should cease to be a charge on the public purse, and it recommends that subsidy under the Act of 1924 should be abolished. Housing subsidies have in the past been variously defended, according to the circumstances in which they were granted, as designed to divert capital and labour to the building of cottages from other more profitable employment, to improve the standard of amenity, and to bridge the gap between the economic rent and the rent which the working classes could afford to pay. The first of these purposes does not arise for consideration at the present time; the second has been achieved and there is no need of a subsidy to maintain the position which has been secured; and the gap which existed in 1924 of 4*s*. 8*d*. between the economic rent and the rent then contemplated as reasonable has almost entirely disappeared owing to the fall in the cost of building and the rate of interest. In other words there is no longer need of a subsidy to bridge it.

"We think it probable that the combined effect of the saturation in some districts of the demand for houses for sale, the withdrawal of subsidised competition in houses to let, the general lowering of interest rates on gilt-edged investments, and the reduction in building costs will be to induce the private builder and—still more important—the private investor to return to the provision of houses for letting to the working classes. To this end we consider that immediate policy should be directed. If it fails, there may be no alternative but to recognise that the provision of housing accommodation for such of the working classes as are not in a position to buy their houses will have become finally and exclusively the function of public authorities. We cannot think, however, that private enterprise, if given its opportunity, will fail to grasp it."

At the same time, the report adds, it will be the duty of the local authority, as before the war, to watch the position with care and be prepared to step in to supplement the action of private enterprise by themselves providing houses of an economical type, without subsidy from the taxes or the rates, where a need is shown to exist and private enterprise is unable to meet it. The withdrawal of subsidy, it is held, will have a salutary effect in checking extravagant proposals.

ALLOCATION OF ACCOMMODATION

On the use and disposal of municipal houses the committee thinks that the following principles should command general agreement: (1) that subsidies should not be wasted by being given to those who do not need them; (2) that in present financial circumstances every reasonable endeavour should be made to increase the revenue obtainable or to reduce the loss arising from housing estates, by requiring tenants who can afford it either (*a*) to pay higher rents or in some cases to buy their houses and so release public capital for other purposes, or (*b*) to vacate their houses which would thus become available either for sale in the open market or for accommodating poorer workers who are unable to provide for themselves; and (3) that accommodation should not be wasted, as happens, for example, where a 3-bedroomed house is allocated to a couple without children or with only one child, or where such a house continues to be occupied by parents whose family has left them.

Public Health

An efficient public health service is a matter of national importance: in certain of its aspects it makes a strong appeal to human interest and sympathy. None the less, these considerations cannot be any warrant for lack of care in administration or for the absence of strict business methods in the expenditure of public money. Recent legislation has greatly extended the scope of the public health services (e.g., the Notification of Births Acts, 1907 and 1915, the Maternity and Child Welfare Act, 1918, the Midwives Acts, 1902 to 1926, the Public Health (Tuberculosis) Act, 1921, the Blind Persons Act, 1920, the Mental Treatment Act, 1930, the Mental Deficiency Acts, 1913 to 1927). Such development has, in the committee's view, been too rapid to permit of organisation in the most efficient and economical manner, and it may be that a breathing space for review, even if this should mean more gradual attainment of desirable ends, would prove to be in the interests of the services themselves as well as of administrative efficiency. The intention is to suggest ways in which the health services of the country can be provided, in normal times, at substantially less cost. While it is difficult to evaluate in terms of money services necessary to preserve, or designed to improve, the national health, it is the committee's belief that none of the suggestions made tends to reduce any service of real value to public health.

CLOSER ADMINISTRATION

The variations between the unit costs of authorities working prima facie under similar conditions, for the same purpose and with no apparent difference in the results, are so wide that it appears unreasonable, without close inquiry, to accept them as necessary variations due to differing local circumstances. The report gives this example:

Two county boroughs of populations 90,000 and 70,000 respectively, approximately of the same degree of industrialism, spent over a period of five years on infant welfare

service average amounts of £630 and £2360 respectively per 1000 births. The average infantile mortality-rate for the same period was 57 in the former and 72 in the latter. Again, the costs of maintenance per patient per week of two mental deficiency institutions, each maintained by the council of a large county borough, each with rather more than 200 inmates, were in 1930–31 65*s.* 10*d.* and 16*s.* 4*d.* respectively.

The committee does not contend that such figures in themselves prove anything; but they need investigation. Their examination makes it clear that there is no obvious relation in the health services generally between expenditure and results. There seem to the committee to be a few services which modern medical opinion considers to be obsolete or obsolescent, either by change in the circumstances to which they were directed when they were instituted or by advances in medical knowledge.

INFECTIOUS DISEASES HOSPITALS

It appears to the committee that the provision of a number of small independent isolation hospitals, each serving for all purposes a comparatively small area, leads to waste of effort and of money. Greater efficiency and economy would be secured if small hospital authorities would coöperate, classify the isolation accommodation available in their several districts and arrange for its use to serve the whole area of the districts. The duty of the central body would be the coördination of the accommodation available to secure, for example, that when a diphtheria ward is open in one district a diphtheria ward of the hospital in an adjoining district is not opened for sporadic cases of diphtheria until the accommodation in the first district is fully used. When new accommodation is provided, cubicle blocks should be given an important place; with trained nursing staff they obviate the opening of wards for sporadic cases of infectious disease. Hospital authorities should consider carefully how far any special provision which they have made for small-pox could be disposed of or converted to other use by coöperation with other hospital authorities.

Following the 1927 departmental report there is no reason for prescribing a routine period of detention in hospital of more than four weeks in uncomplicated cases of scarlet fever. The statistics provide nothing to suggest that an extension of this period has any effect on the number of return cases or on the incidence of, or mortality from, the disease. While the longer period of detention may have been properly adopted as a precaution at the time when the mortality from scarlet fever was heavy, the committee considers that the seriousness of this disease has wholly altered in the last 50 years and that the former procedure is now followed rather from habit than from any medical necessity. Adoption of the conclusions of the 1927 report would save some £120,000 per annum. Careful consideration should also be given to the question whether mild cases of scarlet fever might not be dealt with at home, when the home conditions permit, reserving removal to hospital for the more serious cases.

Both in scarlet fever and in diphtheria, if proper procedure is adopted during the course of the disease, the terminal disinfection has little medical value and is performed largely out of deference to public opinion. Sanitary authorities, in consultation with their medical officers of health, are advised to take steps to educate public opinion in this matter and discontinue such of their present expenditure on disinfection as has no medical value. The saving is not likely to be less than £100,000.

MENTAL HOSPITALS

The committee finds a widely held view that the Board of Control require too elaborate and expensive a standard of construction for mental hospitals. Local authorities themselves have put forward proposals for expenditure far beyond what is necessary. Much of the uneasiness felt regarding mental services might, in the committee's view, be allayed if the functions of the Board of Control were restricted to considering and advising on specialist questions relating to the treatment of mental disease; and if their administrative duties were discharged, like the central administration of other health services, by a staff forming an integral part of the Ministry of Health establishment.

The committee has considered how far further building of mental hospitals may be avoided by reserving the hospitals more strictly for persons in need of mental treatment. There are in many mental hospitals a number of harmless senile patients who could be suitably treated either in their homes or in institutions less expensive than mental hospitals such as public assistance institutions. Similar considerations apply to mental defectives who have been admitted to hospitals for mental treatment and who have not been removed from the hospital when temporary mental disease has been cured.

While it is important to the welfare of patients in mental hospitals, and likely to promote their cure, to provide them with occupation, it is financially important that this occupation should, to the extent permitted by the circumstances of the hospital, provide a proper financial return.

MENTAL DEFICIENCY

As there is no evidence that more than a negligible number of mentally deficient persons are improved in condition by treatment, the primary object of a mental deficiency institution must be, not the treatment of the patients, but to provide for them decent housing and maintenance, with occupation consistent with their capacity, which should produce some financial return. With increased ascertainment of mental defectives, its cost, per 1000 of the population, has increased from £14·7 in 1920–21 to £24·3 in 1924–25, £32·2 in 1927–28, and £37·9 in 1929–30, the last year for which complete figures are available. If this alarming increase is not checked, the report states, the financial consequences will be disastrous. This service is in its early stages. There is still opportunity to secure that suitable provision is made for mental deficients on simple and sound economical lines at a much lower cost than is at present in contemplation.

"The primary purpose of the service should be the protection of the public against defectives who may be a danger to the community. The second should be the maintenance of these and other mental defectives in reasonable circumstances. In the second purpose it seems to us necessary to consider the claims not only of the unfit persons who are unable to support themselves but also of the fit, at whose cost they must be supported. We think that the burden on the fit cannot in equity be much further increased; and that much of the provision recommended by the Board of Control is of a standard disproportionate to the cost of maintaining the same number of productive fit persons. We suggest that these standards should be revised and simplified and, in particular, that less elaborate classification should be called for."

The committee is not satisfied that the figures of the Wood report are sufficiently established to warrant the assumption that a certain number of defectives must exist in any given area, or to justify a requirement that local authorities should provide institutional accommodation on a scale much in advance of the

actual ascertainment of defectives. There is need, it adds, for greater caution before deciding that a person is mentally deficient. For higher grade defectives the greatest possible use should be made of the system of securing for such persons employment, in domestic service or otherwise, with suitable employers who are prepared to act as guardians.

TUBERCULOSIS

The committee does not question the value for both prevention and cure of sanatorium treatment properly applied, but is of opinion that in some areas treatment in sanatoria is indiscriminately given to certain classes of tuberculous persons without sufficient care to ensure that this expensive treatment is used only for persons for whom there is a reasonable expectation of providing a cure. Money and effort are frequently wasted in giving prolonged periods of sanatorium treatment to persons in the intermediate stage of the disease.

"The class of tuberculous persons known variously as 'intermediate,' 'T.B.+2' or 'B2' is a heterogeneous group and contains a number of persons who respond well to treatment. Prolonged and skilled observation is often necessary before it is possible to assess the outlook of a patient, and this skilled assessment of outlook for the individual patient is of more importance, for the determination of the kind of treatment to be given, than classification in any of the categories used for statistical purposes. In some patients in this group observation of the results of treatment in a sanatorium will show that quiescence of the disease is not likely to occur. When this point has been reached, there is little purpose in automatically continuing sanatorium treatment and the patients should be returned to hospital or to their homes under the general supervision of the tuberculosis dispensary, as the progress of the disease or the condition of their homes may indicate."

Records of treatment given for tuberculosis show in the committee's view, that insufficient discrimination is still exercised in the selection of patients in this intermediate group for prolonged periods of sanatorium treatment. The essential point is that treatment should be preceded by the most accurate diagnosis possible, that the effects of the treatment should be carefully watched, and that prolonged institutional treatment should not be given to persons found unlikely to be restored by it, for whom such relief as they can secure can be more cheaply provided.

In many areas children, it is held, are diagnosed as tuberculous on insufficient evidence and given prolonged periods of sanatorium treatment. A careful investigation in Lancashire has indicated that approximately half of the children up to 15 years of age who were referred to the tuberculosis officer as being suspected of suffering from tuberculosis and were diagnosed as non-tuberculous, did not, between the ages of 15 and 25, return to the dispensary as definite cases of pulmonary tuberculosis. Careful and conservative diagnosis of pulmonary tuberculosis in children would reduce the number of sanatorium beds required for children with consequent saving of public money. Where tuberculous disease in the bronchial glands can be definitely established, institutional treatment is often advisable, whether for cure or to prevent serious breakdown in later life. But here also we think that more discrimination and greater care in diagnosis are necessary. The possible saving from these two recommendations might be £60,000 to £80,000.

VENEREAL DISEASES

In the interests of public health it is necessary that free clinics for the treatment of these diseases should continue to be provided, but it is suggested that, where the local circumstances permit, separate sessions at which fees are charged should be held to meet the needs of those persons who would be willing or who desire to pay fees for the treatment provided. In scattered areas it is suggested as an alternative that selected practitioners in the area should be recognised as capable of giving adequate treatment, that patients willing and able to pay fees should be advised at the clinic to receive further treatment from one of these practitioners, and that the practitioners should be supplied by the local authority with the necessary arsenobenzene compounds.

MATERNITY AND CHILD WELFARE

Health Visitors.—The question was raised whether it was proper that these officers should receive salaries in excess of those paid to hospital nurses. The committee was informed, however, that both the standard of training required and the cost of the training are high and that health visitors are frequently able to prevent the development of disease or secure that treatment is provided in the first stages of disease which, if it developed, would require more expensive treatment. In country districts in particular they have to act on their own responsibility to an extent not required of a hospital nurse or sister. It is essential, in the committee's view, that this specially trained staff should not be used on routine duties, but should be employed on work where their special qualifications are necessary and can be used to the best advantages.

Maternity Homes.—Wide variations exist in the maintenance costs which are obviously excessive in the smaller units. Costs of £6 to £8 per patient week are not uncommon; the highest figure in 1929–30 was £9 15*s.* per week, including loan charges. Such expenditure appears to the committee indefensible. Greater efficiency would be secured by providing larger homes, each covering a large area, or by making arrangements with voluntary hospitals.

Infant Welfare Centres.—While satisfied that these centres provide a valuable service, the committee considers that their advantages are frequently abused.

"Milk and other foods should not be freely distributed without careful scrutiny, and some payment, however small, should be required in all but the most necessitous cases. We consider that the primary function of such centres should be to provide advice, and that as a general rule treatment should be provided rather by the ordinary general practitioner."

Similarly the work of antenatal clinics is valuable if it is properly coördinated with the midwifery or other maternity services so as to secure continuity of treatment. If the information obtained at the antenatal clinics is not passed on to the persons under whose care the confinement will take place, full value is not being obtained for the expenditure incurred.

Day Nurseries.—Their purpose has in recent years been extended beyond the original limits of providing for children whose mothers are obliged to engage in daily work which takes them away from home, or who are temporarily in distress. This service should again be strictly limited to the purpose for which it was originally intended, the cost per child per day should not exceed 2*s.* 6*d.*, and a substantial proportion of this cost should be obtained from the parent.

INSTITUTIONAL TREATMENT

The cost of institutional treatment, the committee remarks, is the most expensive item in the cost of those health services which provide treatment, as opposed to the sanitary services whose primary object is prevention. Much of the institutional accommodation already provided is in its opinion excessive in first cost, probably due largely to the natural desire of persons responsible for the administra-

tion of health services to secure the best possible equipment for their service.

"Instances brought to our notice suggest that this tendency is found both in the requirements of government departments and in proposals submitted by local authorities. In any event, the facts are that the average cost of isolation hospitals in England for which loans have been sanctioned in the last five years is £770 per bed, excluding the cost of the site (in one instance the cost is £1072 per bed), the average cost of sanatoria and hospitals for tuberculosis sanctioned in the last ten years in England is about £710 per bed, excluding the cost of the site, and the average cost of mental hospitals £475 per bed, excluding site and furnishing."

The committee is satisfied that these high costs are excessive and should be substantially reduced in future building. Certain hospitals have cost per bed an amount nearly equivalent to that of three working-class houses, and there should be an immediate inquiry by a competent committee into building costs with a view to arriving at standards which will provide without extravagance the essentials for the treatment of disease and take account of modern methods of construction. When these standards have been determined action should be taken to secure that they are observed in future building of public health institutions.

Cost of Maintenance.—Wide variations in the cost of running apparently similar institutions should not be allowed to pass without a definite effort to ascertain the reasons for the abnormal costs and to secure that the maintenance expenditure is not inflated by avoidable waste or faulty management. There is clearly greater difficulty in determining what should be the proper average cost of maintenance of each type and size of public health residential institution, but we suggest that careful consideration should be given to the feasibility of establishing standards of maintenance costs on similar lines to the standards of building costs mentioned in the previous paragraph.

Proper Use of Institutions.—Local authorities being aware that institutional treatment is expensive should exercise continual care to secure that this form of treatment is reserved for those cases which cannot adequately be treated otherwise, and that any particular patient should not be maintained in an expensive type of institution for a condition which can equally well be treated in the patient's home or in a less elaborate type of institution. Authorities who own general hospitals should bear in mind the importance of reducing the average occupation of their beds by early diagnosis of cases admitted, and by proper organisation of their out-patient department to deal with cases which do not require residential treatment.

MISCELLANEOUS

Standardisation of Supplies.—Large economies, it is believed, could be secured in expenditure on hospital supplies by simplifying and standardising the articles required and by systematic purchasing. If each of the institutions under the control of a local authority decides on the types of articles (e.g., of soap, disinfectants, towels, &c.) it requires and caters separately for its own needs, there is obvious scope for waste of effort and money. The committee thinks that a saving of not less than £300,000 could be secured on the cost of supplies for public health and poor-law institutions. A small committee to consider the questions of standardisation of hospital supplies and central purchase was set up by the recent Public Health Congress and a report is in preparation.

Recovery of Cost.—There is much variation in the practice of different authorities in charging persons whose circumstances permit them to make some payment for the services provided. The committee considers that as a general rule all persons taking advantage of a service provided by a local authority should contribute, as far as their means permit, towards the cost of the services provided.

Hours of Work.—The general question of salaries and wages is discussed at length. The committee notes that the hours of work in mental hospitals vary from over 60 hours per week including meals, to 48 hours per week excluding meals.

"We do not consider that there is any need for the reduction of the hours of duty to 48 per week and we are informed that the reduction necessitates three shifts and increases expenditure."

Printing Reports.—The annual reports required of medical officers of health and of mental hospitals visiting committee are in a number of areas large and elaborate books, well prepared and arranged, costing large sums for printing alone, without taking into account the time spent on their preparation.

"We consider that such reports should deal simply with the work done by the department concerned in the previous year, and that they should not be used as an opportunity for recommending policy. Much of the statistical material has been included in other returns made to the Ministry of Health, and we think that, unless the medical officer of health considers it necessary that any such statistics should for special reasons be brought to the notice of the council, this duplication should be avoided. We recommend that the Ministry should reduce the particulars called for to the essential minimum."

Public Assistance

Under Article 11 (3) of the Relief Regulation Order, 1930, the case of every person receiving institutional relief is required to be reconsidered within six weeks after admission and thereafter not less frequently than once in 27 weeks. In many counties and county boroughs the committee believes that the half-yearly review required by the Order has either not been carried out or has been done in a perfunctory way. The present circumstances of the parents should be investigated, and if they are in a position to do so they should be required to remove their children from the poor-law homes. Inquiry should be made whether there are relatives who are able and willing to allow inmates of general institutions to reside with them. Many cases are admitted to hospitals and infirmaries as sudden or urgent by medical officers, masters, and relieving officers. Early and thorough inquiry should be made as to the means of such inmates, the circumstances of their liable relatives, and the need for continued institutional relief. In the case of persons of unsound mind, particular care should be taken to inquire whether they possess property or have moneys due to them.

Children.—The cost of relieving children in institutions is much higher than the cost of boarding out, and the committee recommends all authorities to adopt, as far as is practicable, the policy of boarding out all orphans, deserted, and adopted children. When suitable foster-parents can be found the committee is satisfied that boarding out is not only an economy but also a benefit to the children.

Mental Hospitals.—The cost of extending these hospitals could in the committee's view in many cases be avoided if harmless senile patients were removed to vacant accommodation in poor-law institutions. It should frequently be an economy to extend other institutions for the reception of harmless senile cases rather than to extend the mental hospital itself.

Classification.—Since the transfer of poor-law institutions to the councils, a good deal has been done in the way of classification of the inmates, but there are still many institutions in which classes of persons

who do not require much skilled nursing and medical attention (for instance, the aged and infirm) are mixed with cases of acute sickness. Economies, it is suggested, might be secured by better classification.

Mental Defectives.—The surplus accommodation in poor-law institutions is being utilised to an increasing extent for mental defectives, and it is proposed to use a number of such institutions wholly for lower-grade mental defectives. The committee is in agreement with this policy, but considers that the standard of the requirements of the Board of Control for the adaptation of poor-law buildings for this purpose should be reduced as a temporary measure of economy, and that councils should be allowed to spread their programme of adaptation over a period of years.

"We feel also that the process of congregating high-grade mental defectives in specialised institutions should, under present conditions, be delayed. At present there are in many poor-law institutions a few high-grade mentally defective women who are usefully employed, for example, in laundries and kitchens. If these women are withdrawn to specialised institutions, it is necessary to replace them with paid labour."

Finally, in the view of the committee, the appropriation of poor-law infirmaries as public health hospitals, though desirable in principle, is likely to lead to additional expense, and should not, under present financial conditions, be unduly pressed.

It should be added that so far as the matters noted in this summary of the English report are concerned the recommendations of the committee are unanimous. The Scottish report is noteworthy for its recommendation that an independent inquiry into the whole subject of public health from every standpoint—health, social, administrative, and financial—be at once instituted.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt. J. J. Mason to be Surg. Lt.-Comdr.

R. C. T. Pearson to be Surg. Lt.

The following appointments have been made: Surg. Lt.-Comdrs. M. Barton to *Berwick* and A. L. McDonnell to *Pembroke*, for Chatham Dockyard.

ROYAL NAVAL VOLUNTEER RESERVE

Proby. Surg. Lt. W. D. Williams to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS

Lt.-Col. S. C. Bowle having attained the age for compulsory retirement is placed on retd. pay.

Maj. A. L. Foster to be Lt.-Col.

Lt. (prov. Capt.) J. W. Kendall, half-pay list, resigns his commn. on account of ill-health.

ARMY RESERVE OF OFFICERS

Capt. A. R. Balmain, from Supp. Res. of Off., to be Capt.

TERRITORIAL ARMY

Lt. L. D. Williams to be Capt.

Lt. H. R. Ferguson resigns his commn.

R.A.M.C. AND I.M.S. PRIZE WINNERS

The War Office announces that the prize winners in the Junior Class of Instruction for Officers of the Royal Army Medical Corps and Indian Medical Service at the Royal Army Medical College, at the session which terminated on Oct. 30th last, were as follows:—

Capt. J. H. Crawford (St. Mary's Hospital), I.M.S., Herbert Prize (highest aggregate) and Ranald Martin Prize (Tropical Medicine). Lt. C. M. Marsden (Melbourne University), R.A.M.C., 1st Montefiore Prize (Military Surgery). Lt. N. P. Breden (Sydney University), R.A.M.C., 2nd Montefiore Prize (Military Surgery). Lt. T. M. R. Ahern (Trinity College, Dublin), R.A.M.C., Marshall Webb Prize (Military Medical Administration). Lt. J. W. A. McIver (Aberdeen University), R.A.M.C., Tulloch Memorial Prize (Pathology). Lt. C. J. H. Brink (Witwatersrand University), I.M.S., Fayrer Memorial Prize (Pathology). Capt. G. R. M. Apsey (Guy's Hospital), I.M.S., Parkes Memorial Prize (Hygiene). Lt. G. W. Crimmin (Cambridge University and St. Thomas's Hospital), R.A.M.C., De Chaumont Prize (Hygiene).

A MODERN RADIOLOGICAL DEPARTMENT

THE DOUTY X RAY CLINIC AT CAMBRIDGE

THE new X ray department opened at Addenbrooke's Hospital, Cambridge, last Friday, is unusual—perhaps unique in England—in that it does not form part of some other building. In designing it the sole consideration has been the convenience of the radiologist, his staff, and his patients, and the result is a building that should be an example of efficiency. During the past three years Dr. Ffrangcon Roberts, the director, has made himself thoroughly familiar with continental methods,[1] and (as Sir Humphry Rolleston said in opening the clinic) he has used a critical discretion in adopting those best suited to English patients. The department also embodies ideas of his own.

The realisation of Dr. Roberts's plans has been made possible by an anonymous gift of £6000 in memory of the late Dr. Edward Henry Douty (1861–1911), assistant surgeon to Addenbrooke's from 1895 to 1897, and in his opening address Sir Humphry gave some account of Douty's life and work.

The son of Joel Douty, master of Netherhampton School, near Salisbury, he entered K'ng's College in 1881. His studies were interrupted by his father's death, but in 1885 he returned to Cambridge to work for a medical degree. Meanwhile he supported himself by teaching, and during the next 12 years he was variously senior demonstrator of anatomy, lecturer on midwifery, and supervisor of medical studies at King's and Emmanuel's. After qualifying from the Middlesex Hospital he started practice in Cambridge, and joined the staff of Addenbrooke's; but in 1897 the onset of pulmonary disease sent him abroad. For some years he practised at Davos, carrying out the Nordrach treatment which he had learnt as a patient at Otto Walther's sanatorium, but later his surgical bent reasserted itself, and he subsequently lived at Cannes and in Paris.

"As a medical man," said Sir Humphry, "he was not only quick in forming an opinion but was seldom wrong. With a happy facility for attracting and managing patients he rapidly became busy, and no trouble was too great for a friend or for the poor. His contributions to medical literature, though not numerous, were in three languages. . . . He was a connoisseur of music, literature, and almost every branch of art, and there were few subjects on which he had not clear and independent views. His virile and magnetic personality exerted a wholesome influence on patients, and especially on his pupils between 1885 and 1897, and many owed much to his kindly and vigorous assistance at critical periods of their lives."

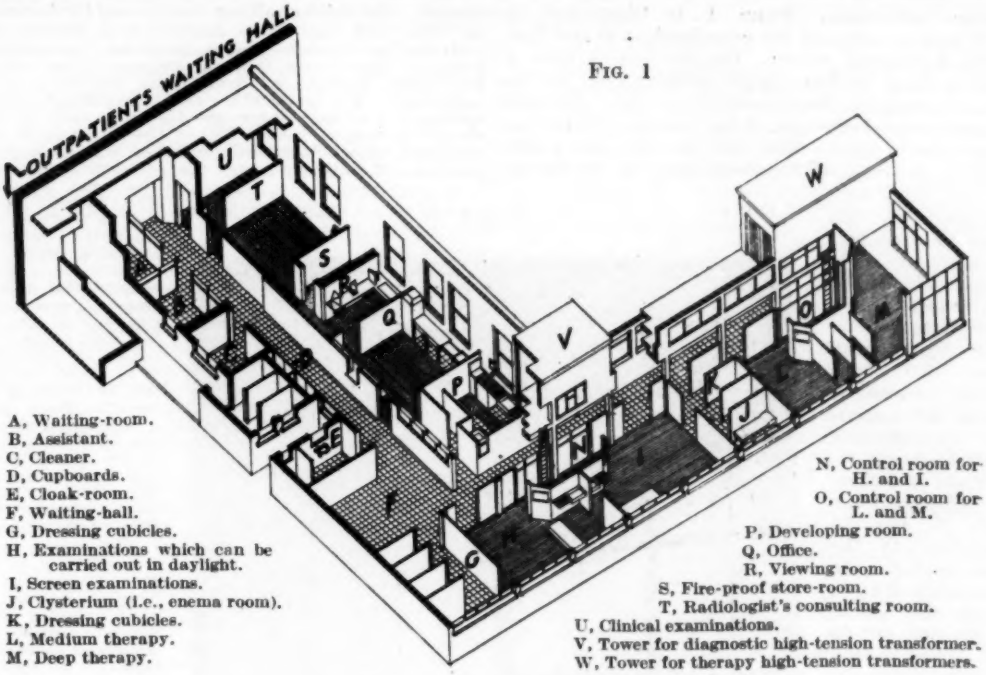
On Sept. 21st, 1909, he married Kathleen, third daughter of the late Sir Frederick Wills, and their only son has followed him to Cambridge as an undergraduate.

The happy association of radiologist and architect, as Sir Humphry said in conclusion, has produced a clinic worthy of E. H. Douty's memory, of the generous donor, and of Cambridge.

The general plan is shown in the architect's isometric drawing, which we reproduce. One of the first things that strikes the visitor is the fact that there is very little apparatus in the rooms in which the patients are examined or treated. The danger of high-tension shock is thus eliminated, and the apprehension caused to nervous patients by the presence of formidable machines is removed. The accompanying illustrations show that there is space to move about in the rooms, and that there is nothing very alarming in their general appearance. Further, the electrical connexions are so arranged that the necessity for manipulation of the tubes by hand is reduced to a minimum. Noise and danger, which

[1] He described some of his observations in THE LANCET, 1929, ii., 1239.

FIG. 1



A, Waiting-room.
B, Assistant.
C, Cleaner.
D, Cupboards.
E, Cloak-room.
F, Waiting-hall.
G, Dressing cubicles.
H, Examinations which can be carried out in daylight.
I, Screen examinations.
J, Clysterium (i.e., enema room).
K, Dressing cubicles.
L, Medium therapy.
M, Deep therapy.
N, Control room for H. and I.
O, Control room for L. and M.
P, Developing room.
Q, Office.
R, Viewing room.
S, Fire-proof store-room.
T, Radiologist's consulting room.
U, Clinical examinations.
V, Tower for diagnostic high-tension transformer.
W, Tower for therapy high-tension transformers.

were once considered inevitable accompaniments of X ray work, are eliminated; the work is carried out in silence and safety. Another important feature of the building is its lightness and airiness. It is of highest importance, for the sake of the staff as well as the patients, that X ray work should be carried out in cheerful and well-ventilated surroundings. The cheerfulness has been achieved by decorating the walls in a light colour and by inserting as many windows as possible, while ventilation is ensured by the provision of extraction fans in the principal rooms.

Entering the department from the out-patients' waiting-hall, one passes on the right a waiting-room for private patients (A), an assistant's room (B), a cleaners' room (C), cupboards (D), a cloakroom for the staff (E), and a waiting-hall (F). Diagnosis is carried out in two adjoining rooms, H and I. The former is used for cases which can be examined in daylight; it contains a Potter-Bucky couch with a

FIG. 2

Diagnosis room No. 2 (I).

movable tube-stand. Room I is illustrated in Fig. 2, and is intended for examinations in the dark on the fluorescent screen. On the left is seen a screening-stand for the upright position, and on the right is a couch for the recumbent position. Beneath the couch is a concrete pit, at the bottom of which an X ray tube is fixed. The tube is 6 ft. from a film placed on the chest of a patient lying on the couch, and in this way distortion of the picture is avoided. The circular hole through which the X rays pass is visible in the photograph.

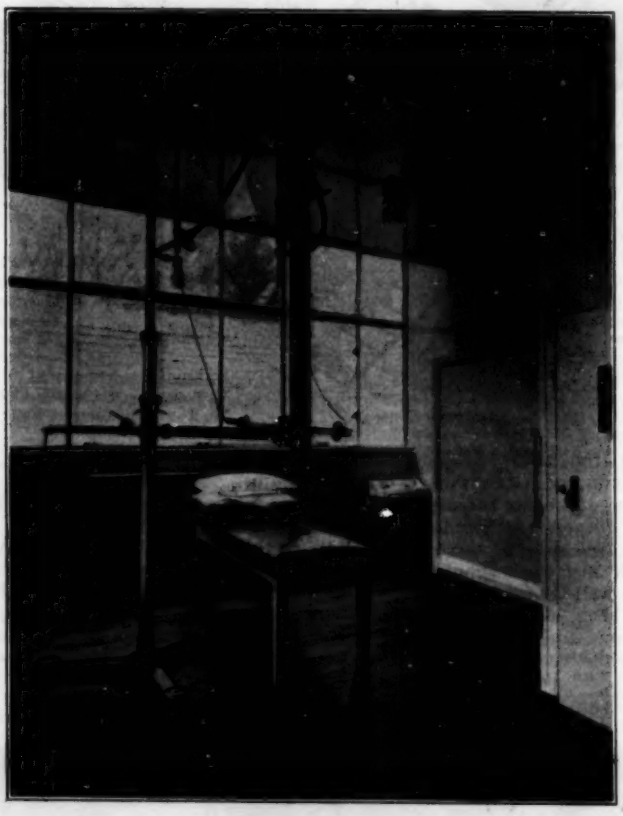
The high-tension current for both diagnosis rooms is supplied by a four-valve transformer housed in tower V. By means of a four-way change-over switch it can be transmitted to the tubes behind the screening-stand, beneath the couch, and in the pit in room I, and to the tube over the couch in room H. The amount and direction of the current are controlled from cubicle N which communicates with both H and I.

Adjoining each diagnosis room is a row of dressing cubicles G and K. J is a clysterium, or room for the preparation of patients for examination by barium enema.

Therapy room L is used for the treatment of the skin and of internal organs where deep penetration is not required. Its tube is fed by a single-valve transformer giving a pulsating current of 150,000 volts. Room M (Fig. 3) is used chiefly for the treatment of deep-seated malignant conditions. Its tube is fed by a transformer of condenser type giving a constant potential of 200,000 volts. Both these transformers are housed in tower W, and are controlled from cubicle O. The walls of the therapy rooms are lined with sheet lead, so as to protect persons outside them from scattered radiation. The walls between these rooms and the control room are so constructed that the operator, while completely protected from the rays, can see and hear the patient and be heard by him. The high-tension current in both the diagnosis and therapy sections is throughout transmitted by insulated earthed cables which are laid along the ceiling and walls.

The *developing room* is entered by a maze. The outer wall of the corridor, separating the developing room from the waiting-hall, bears on its inner side the main electric switchboards, fuses, and meters. The outer side of the same wall, facing the waiting-hall, is fitted with a large viewing screen for the *exhibition of films* of educational interest. The waiting-hall can thus be used for demonstrating films to a class. Two double-doored hatches in the south wall of the developing room permit the rapid transference of films to and from the diagnosis rooms opposite. Developing, rinsing, and fixing tanks are set in a large outer tank. The temperature can be regulated either by running hot or cold water into the outer tank or by an electric immersion heater. When the latter is in use a warning lamp is automatically switched on in a conspicuous position in the adjacent room. Thus the risk of overheating the tanks is avoided. The washing tank is half in the developing room and half in the adjoining room, the films being conveyed through the wall in a wagon running from one end of the tank to the other. The object of this device is to avoid the carrying of dripping films over the floor.

FIG. 3



Part of the deep-therapy room (M). (Apparatus not complete.)

In room Q the films are dried in a current of hot air and labelled. This room contains the store of recent films and all records, and is the office of the clinic.

Examination of films is carried out in room R. Occupying the length of one wall is a viewing screen which permits the simultaneous examination of a series of films of the same case. A pictorial review of the history of the case is thus obtained. On the opposite wall is a stereoscope. At the end of the room a viewing screen sunk horizontally into a bench enables tracings and measurement of organs such as the heart to be made.

S is a *fire-proof store*, and T the radiologist's consulting-room, out of which opens U, a room for the clinical examination of patients attending for therapy.

The architect of the building is Mr. William Keay, F.R.I.B.A., of the firm of Messrs. Pick, Everard, Keay and Gimson, of Leicester. The builder is Mr. John Brignell, of Cambridge.

On the opening day there was an exhibition illustrating, among other things, the use of X rays in medicine and engineering and by collectors of pictures. Some of the exhibits were provided by Mr. Hayles, of the Cavendish laboratory, who is believed to have been the first to take an X ray photograph in this country. The department will be open to the public next Sunday at a small charge.

STAFFORD MENTAL HOSPITAL.—A new reception hospital on land adjacent to this institution was formally opened last week. It will accommodate 56 patients, divided equally between the two sexes. Speaking at the opening ceremony Mr. L. G. Brock, chairman of the board of control, said that the building of reception and treatment centres was the really economical way in the long run of adding to a mental hospital.

THE DOCTOR'S DAY

"Come, tell me how you live," I cried,
"And what it is you do!"

IV.—AN INDIAN DAY

THE civil surgeon's bungalow at Rajapur is on the edge of the race-course which encloses a nine-hole golf links. Beyond that is open country, some of it cultivated but for the most part barren and broken by *nalahs*, fringed with mimosa, acacia, cactus, and other scrub jungle, mostly thorny. A fine place for gazelle and black buck and, near the cultivated oases, quail and partridges. The compound attached to the house extends to a couple of acres, including the paddock where two ponies, an Arab and a classy little country-bred mare, take the air. For some seasons past a stone curlew (a near relation of our Norfolk plover) has nested there. A shy bird in the wilds, she has now grown so accustomed to human society that she merely waddles off a few yards when we go to inspect her eggs.

AN EARLY VISIT TO THE JAIL

The day's work opens with a quiet canter round the race-course with Bill, the bull-terrier, at heel. Then on a mile or more to the jail, of which the civil surgeon is superintendent. No sinecure in these days. I am writing of ten years ago. They have chosen us, as being off the beaten track, to offer hospitality to certain notorious political offenders: a Hindu, editor of a paper in Sind, and a Mahomedan, a great brawny fellow, breathing fire and sword on his arrival. I received them with grave misgivings, both as to personal relations and prison discipline. But familiarity often breeds good feeling. After preliminary admonitions about the observance of prison rules and regulations, contact was soon established and we settled down on friendly terms. My Mahomedan friend is now the accredited leader of his co-religionists in India and, with certain reservations on politics, there is no one I would rather dine with if we met again. He was an omnivorous reader and I often had the pleasure of lending him a book to temper the rigorous conditions of his confinement.

The jail, like almost every establishment of its kind, was a model of cleanliness and hygiene. It was exceptional for prisoners not to gain weight after admission, and in most material respects nine-tenths of them were better off than they had ever been before, or would be again. The chief adverse comment one could make was that the conditions of life tended to become a little inhuman. The Indian jails were slow in assimilating the lessons of advanced criminology in Europe and America. But a change was in the air, and it is pleasant to reflect that this small institution was perhaps a little in advance of the times in making certain concessions which, while not interfering with discipline, were much appreciated by the inmates. Books and music, talks by benevolent Indian visitors, these had an elevating influence without any weakening of authority. Medical and surgical work in a place of this kind are reduced to a minimum. Simple but adequate measures of hygiene and sanitation ensure that, and the death-rate was almost nil.

The details of administration mostly devolve on the jailor, so that unless there was any serious breach of discipline to consider, or someone to be hanged—neither of which was a frequent occurrence—the superintendent was soon on horseback again, on his way to the civil hospital, which lay a mile nearer to the town along the river bank. This hospital was in some respects much above the average. One was fortunate in having a well laid-out block of buildings to commence with. Further, the fact that we were in the centre of a number of native States made it easier to obtain funds for modernisation and improvements. Former incumbents had included several keen surgeons who had made a considerable name for the institution in the surrounding country, and it only remained to keep up this reputation as far as one could, while adding modern conveniences as rapidly as possible. At that period things were on the move and during my tenure of the appointment we remodelled the out-patient department and theatre, added an isolation block, and also an X ray and laboratory department. What was more essential, we gradually evolved a staff, entirely Indian, who had the requisite training and turned out work which was worthy of the improved facilities. The X ray institute, in particular, was excellent; the equipment was installed under the best advice, and work is now being done which would be no discredit to a large teaching centre.

MORNING IN THE HOSPITAL

In a post like this the civil surgeon has, unfortunately, little time to spare for the out-patient department, and one usually proceeded at once to the wards. There the general character of the work was at once evident. A fair proportion of the surgical beds was nearly always occupied by cases of stone, dealt with in various ways, and in different stages of convalescence. As in all properly run Indian hospitals, the great majority were treated by litholapaxy. Where this was not possible by the ordinary route, perineal litholapaxy was resorted to, if in any way practicable. Only in cases where drainage was desirable, or the stone unmanageable, was suprapubic lithotomy performed. The Indian cultivator is a shrewd critic in his way, and a wholesale resort to lithotomy would at once make its influence felt in diminished admissions. It is strange, by the way, considering the widespread prevalence of stone in the bladder in India, that renal calculus is little in evidence. Gall-stones also are of quite uncommon occurrence.

Not less important than bladder surgery was the eye ward. Cataract cases always occupied a large proportion of the beds, but there was also a fair selection of other eye diseases, trachoma and its effects being prominent among them. Another branch of surgery in which we specialised was rhinoplasty. Nose-cutting has almost disappeared from many parts of India, but we were a backward province, and with a certain section of the community it was still the recognised punishment for unfaithfulness in women. In some respects Indian surgery has altered very much in the last forty years. It has taken a long time, for instance, to educate the Indian public to the advantages of abdominal surgery under modern conditions. But the theatre list of any progressive district hospital will bear witness that this fight has now been won. Not so long ago hernias came only when they were strangulated, ovarian cysts when they had grown to inordinate size, or the contents had suppurated, or the pedicle undergone torsion. The contents of my first ovarian filled two buckets. Now radical cures are done and hernias recover, whereas a large proportion of them used to end fatally, and ovarians often come to notice at a comparatively early stage.

A good day in the theatre at Rajapur, as time went on, might include, besides the usual run of bladder work, and perhaps a liver abscess, a hernia or two, a hydrocele, an abdominal case, an amputation. Rhinoplasty took a long time, and was usually relegated to a different day, and eye work was dealt with separately, by a specially trained ophthalmic surgeon—an independent practitioner, appointed on an honorary basis. Tetanus was not uncommon, but was usually admitted as such, and carried no reflection on our work. The chronic cases recovered, the acute died, as I gather they still do in English hospitals, in spite of more scientific treatment. The medical wards, I am afraid, received less attention than was properly their due, though we

utilised the laboratory, when occasion required, and blood examinations for malaria and typhoid were constantly carried out. The material was inexhaustible. Malaria, dysentery, and respiratory disease were always with us, and on the whole were adequately treated, though nursing was a weak spot.

The hospital boasted a well-qualified matron and one or two nurses, but the bulk of the nursing was done by roughly trained and mostly illiterate attendants, male for the men's wards and female for the women's. A curious difficulty was the low repute in which the profession of nursing stands—when it comes to placing their own daughters in it—amongst better class Hindu as well as Mahomedan families. Only education will make it possible to recruit a sufficient number of the right type of woman for this work; but the Servants of India and Seva Sadan, and other advanced movements interested in social service, are already showing that something can be done in this direction.

Anæsthetics were also a difficulty sometimes. Chloroform was in almost universal use, and it was not always that one felt sufficient confidence in the anæsthetist—who was usually of the subordinate class, and young—to be entirely easy at the other end of the table, in protracted and difficult cases. There are obvious objections to open ether in a hot country, apart from its expense. Latterly, when some of the cheaper brands were authoritatively endorsed, we used one or other of the closed methods at times, but ether has never come into general use in India; partly, perhaps, because there is a widespread consensus of opinion that chloroform is safer in the tropics than in colder climates.

An Indian hospital must be prepared to deal at short notice with certain epidemic diseases which are seldom in evidence at home. We had very good arrangements for a limited number of cases of cholera, for instance, and were always ready to undertake intravenous saline injections. We also treated a fair number of cases of syphilis, and an occasional case of relapsing fever, with salvarsan. Several members of the staff became quite expert at intravenous work, and one was glad to be relieved of it.

AFTERNOON: DISTRICT INSPECTION

By midday the average civil surgeon begins to feel that he has earned a seat in his dog-cart, or nowadays a car, his horse having been long ago sent home; but he will usually have some private calls to pay before he can settle down to his so-called breakfast. In the afternoon I used to have an hour or two of district administrative work, in the office attached to my house, and after that, once a month, a meeting of the medical society at the hospital. That, with us, was a most important function, and everything, except actual emergencies, was sidetracked for it. Men came in from all over a very wide area, and though some of the contributions were of a quaint nature, one never left without feeling that one had learnt something.

An important part of a civil surgeon's multifarious duties is the district inspection work. Rajapur is the controlling centre of a large area, with many dispensaries (some of which have to be reached by lengthy journeys, by rail and road and sea), and an extensive organisation for vaccination. This was not the least interesting portion of one's work. It gave opportunities for sport, when leisure could be found, and for making the acquaintance of the princes and minor chiefs, who were most friendly and hospitable. It also enabled one to examine cases which might be requiring admission to hospital. After a prolonged residence in a centre of this kind one establishes very pleasant relations with the country people as well as their rulers, and many is the time I have been hailed, when travelling, by an old patient, who was often disproportionately grateful for what may have been a simple enough procedure. Professional visits to chiefs of the old school sometimes landed one in strange company. Many of them, as a matter of course, had *vaids* or *hakims* amongst their hereditary retainers, whose presence was somewhat embarrassing in connexion with the treatment. An heir apparent who had been educated on European lines once said to me that he thought the poorest cultivator, who came straight to the civil hospital, was better off than they. He had brought his two children, one suffering from a small stone, the other from suppurating glands in the axilla, for operative treatment, and both were well on the road to recovery after a few days. They had been maltreated by the family *vaid* for months before the head of the house would permit regular medical aid to be called in.

This is not, however, to say that the irregular practitioners are entirely devoid of useful medical and surgical knowledge. I knew one who had met with considerable success in extracting guinea worms by oral suction, through a brass cone, after incision at the point of emergence, and some of them are undoubtedly aware of the elementary principles of splinting for fractures, and also early movement. Even the illiterate cultivator ties a bandage above a snake bite—sometimes with unfortunate results; I have twice had to amputate, when such ligatures had been left on too long. It is remarkable to what sound logical reasoning people who are up against life in the raw attain; I remember a camel driver explaining why it was inadvisable to drink freely before riding. With a gesture reminiscent of surgical demonstrations on volvulus, he said, if you filled your guts with water the motion of the beast flung them about from side to side, and they got twisted—and there you were.

In an up-country post one is, of course, sometimes confronted with cases requiring special treatment of which one has had little or no previous experience. I remember well the first case of gall-stones on which I had to operate. It was urgent, and of a somewhat complicated nature, and the patient was a government official of high rank. In my early days I often had to tackle such cases literally by the book. Dr. Gray, the first British surgeon to practise in Kabul, has related how he pored over the pages of Erichsen, the standard English text-book of surgery at that time, before undertaking his first case of lateral lithotomy, and how the Amir Abdur Rahman, knowing his tribesmen, called up the nearest relatives of the patient, and swore them on the Koran to hold the surgeon blameless in case of fatal consequences. Life in an ordinary Indian hospital was not so stimulating as this would imply, but it was no unusual thing to have to treat unfamiliar and difficult cases which one would have been delighted to pass on to the nearest specialist, had there been any available. Those of us were fortunate who had held a house surgeoncy at home.

GAINING EXPERIENCE

My first experience of serious surgery in India was in a large teaching institution where one could obtain assistance, but even so the hospital was only at the beginnings of abdominal work, and for this I had to rely on my own surgical sense, and what one could get from the available books. The theatre was lacking in almost everything considered essential in theatres to-day. There was hardly any of the orthodox furniture, and we had to supplement what there was with tables and shelves made from marble slabs which had formed part of a disused bathroom. Before that, the preparation of dressings and instruments had taken place on the floor, in deference to the prevailing Indian custom. Looking back, it amazes one to remember how philosophically this procedure was accepted by the theatre sister, a very competent woman. The question of sterilisation gave me a great deal of thought, when the time came to undertake the whole responsibility of that theatre. The carbolic spray had already been discarded at home, and I eventually based my practice on the teaching of the late Sir Watson Cheyne, as set forth in a small volume the title of which I do not now remember. The advent of aseptic methods, including

the wearing of gloves, was a cause of great perplexity. By that time we were fairly wedded to antiseptics, and had every confidence in them, and we dreaded the complications of aseptic surgery, with a mostly illiterate staff. However, leave home, and a visit to Sir Watson—the last remaining champion of the antiseptic school—converted me. With a deprecating smile, he informed me that he also had capitulated, even to the extent of wearing gloves and sleeves. "You see, one's arms are hairy." So it was evidently not for me to hold out longer. As time went on, we became better equipped, and made shift somehow to tackle pretty nearly anything.

THEN AND NOW

Conditions in India have changed considerably since those days. Some of the changes are no doubt regrettable, but not all are for the worse. Many innovations which have hit the European services were bound to come. No one could say the British civil surgeon did not do his share of the work, or did it ill; but the Indian criticism was that he monopolised it, and that his very industry and self-reliance stood in the way of his assistants obtaining the necessary experience. Their claim for house appointments, and later, more responsible work in the hospitals, was just. It is now in process of being met, to the advantage of almost everyone. The impossibility of one man carrying on all the responsible duties of of a hospital of considerable size single-handed is patent, and if in isolated instances some of the new labourers have proved unworthy of their hire (many of the new appointments, by the way, are held by independent practitioners on an honorary basis), the system on the whole has justified itself.

With the general improvement of the hospitals and their equipment, the work has inevitably increased in interest, but with regard to the general conditions of life in India it is idle to ignore the fact that there is another side to the shield. In certain provinces, particularly, revolutionary tendencies are apparent, which must make the life of European officials difficult. But granting this, it may be said that the doctor is in a peculiarly favourable position, in that his labours bring him into touch with the people in a very human way. The call of the East is no mere figure of speech, and I have been struck, in meeting recently retired men, with the frequency with which they say they would be glad to return. Only the other day I met a distinguished civilian who was shot at last year, and only escaped serious injury from the fortunate chance that the bullet struck his wallet. He also is amongst the optimists, and would be glad to take up his work in India again.

CORRESPONDENCE

A CHRISTMAS APPEAL

To the Editor of THE LANCET

SIR,—May I, through your columns, thank those of your readers who have so generously responded to my appeal, published by your courtesy in November. Also I would like to thank the various societies and committees which have assisted in giving publicity to the appeal and have made collections at meetings in aid of our Christmas gift fund.

I regret to say that the amount already received is not sufficient to enable the committee to give either in amount or in number the Christmas gifts which it desires to distribute. It is of great concern to me to feel that some of our poor folks may have to go without the gift which they have had for so many years at Christmas time. I ask whether those who have not already responded will help us between now and Christmas by forwarding a donation, however small, to the honorary treasurer, Royal Medical Benevolent Fund, 11, Chandos-street, Cavendish-square, London, W.1, in order that we may be assured that some kindly gift will be made to our unfortunate brethren and their dependants.

I am, Sir, yours faithfully,

THOS. BARLOW,
President, Royal Medical Benevolent Fund.

Nov. 28th, 1932.

PNEUMOCONIOSIS

To the Editor of THE LANCET

SIR,—The article by Dr. J. R. Todhunter and Dr. G. B. Dixon, in your issue of Nov. 19th (p. 1123), appears to call for some comment. While the object of the article is primarily to direct attention to the pulmonary disease resulting from exposure to artificial abrasives, the evidence put forward that such disease is prevalent is not very extensive or convincing. The six cases cited were all subjects of overt pulmonary tuberculosis, and the employment history given with each case seems insufficient to justify one in ascribing the exposure to abrasive dust as the cause of all the lung changes depicted.

The Factory Department of the Home Office receives reports of cases of fibrosis of the lungs from several sources, including inquests, where the cause of death was suspected to have been due to employment in a factory or workshop; monthly returns of deaths certified as due to fibrosis of the lungs from any cause; and numerous voluntary notifications from medical practitioners and occupiers of factories. All these reports are carefully examined, and occupational conditions are investigated where necessary. The only general inference which can be drawn on our present information is that fatal cases of fibrosis of the lungs occur in those industries in which there has been a risk of exposure to silica or asbestos dust. This is not to say that exposure to dust of artificial abrasives may not cause disablement or death—only that the case is not established. While there are some thousands of persons engaged in occupations involving the use of artificial abrasives, there does not appear at present to be any conclusive evidence to show that disablement or death from pulmonary disease follows as a result of such employment.

As regards the mortality statistics, the figures quoted from the Registrar-General's returns refer to the occupational group "metal glazers, polishers, buffers, and moppers." It must be remembered that many metal glazers have spent some part of their working lifetime as grinders on grindstones, and also that glazing was frequently carried on in the same room as grinding before separation of these processes was required by regulations. Many glazers were therefore exposed to the inhalation of silica dust, and accordingly the statistics of this group do not reflect the effect of artificial abrasives in the production of pulmonary disease.

As regards preventive measures, power is given by the Factory Act to the factory inspectors to require exhaust ventilation in works in which dust is generated to an injurious extent, and there are also two codes of special regulations designed to prevent inhalation of dust by the workers, which have been in force in the metal-grinding industries since 1925. These regulations, a legible copy of which is required to be displayed in every factory to which they apply, require

inter alia localised exhaust ventilation to carry away the dust as near as possible to the point of origin. They apply to the grinding of metals by means of artificial abrasives as well as by means of grindstones, and glazing, which means abrading, polishing, or finishing by the aid of mechanical power, of metal articles by means of any wheel, buff, mop, &c., to which any abrading or polishing substance is attached or applied. Special attention has been given to the enforcement of these requirements in the metal polishing shops in Birmingham, and a suitable type of machine for glazing, buffing, and polishing of all kinds of metal articles is included in the grinding exhibit at the Home Office Industrial Museum, Horseferry-road, London, S.W.1.

As regards sand-blasting, to which reference is made in the section of the article under "Prophylaxis," special precautions to protect the workers engaged in this process, and to prevent other workers from being exposed to the dust of the sand-blast apparatus are required under the miscellaneous code of grinding regulations. In addition, much has been done by the Factory Department to encourage the use of metal grit as a substitute for sand in sand-blasting, by which the risk of silicosis can be eliminated.

I am, Sir, yours faithfully,

JOHN C. BRIDGE,
H.M. Senior Medical Inspector of Factories.

Home Office, London, S.W., Nov. 27th, 1932.

PULMONARY EMBOLISM AND PREGNANCY

To the Editor of THE LANCET

SIR,—I am sorry that my friend Mr. Beattie has stated (Nov. 19th, p. 1105) that treatment when "the embolus is lodged in the main branches of one or both pulmonary arteries is usually of no avail." Although I agree that this is true for those patients who die immediately, there is nevertheless a group of cases that live from ten minutes to several hours where the operation of pulmonary embolectomy is indicated. This operation is not well known in England and only a few hospitals have the instruments and organisation that are necessary, but after some practice on the cadaver there is no reason why the average surgeon should not be able to perform it. Prof. A. W. Meyer at the West End Hospital in Berlin has performed the operation 14 times, and three of these patients are living and well. There are at least nine successful cases published in the literature. As the operation is not undertaken until both pulse and respiration have ceased, there is no question of operative risk.

I am, Sir, yours faithfully,

Harley-street, W., Nov. 22nd, 1932. H. P. NELSON.

STRAINS OF DIPHTHERIA BACILLI

To the Editor of THE LANCET

SIR,—It is pointed out in your annotation of Oct. 22nd (p. 907) that the examination of "gravis" strains of *Corynebacterium diphtheriæ* by agglutination tests may be expected to assist in the classification of this group of organisms. The difficulty in making suspensions of sufficient stability for use in the agglutination test has now been overcome, and we have examined a group of 25 strains, obtained from different localities, by this technique. Conclusions cannot be drawn from the examination of so small a number. The results, however, appear to be of sufficient interest to justify continuing the work on a larger scale, and we are of the opinion that serological investigation of strains is desirable in connexion with any investigation of the correlation between bacteriological and clinical type in diphtheria. We should be glad to arrange to receive cultures from workers engaged in such investigations and to furnish them with serological reports. Communications should be addressed to Miss J. Orr Ewing, B.M., Sir William Dunn School of Pathology, Oxford.

We are, Sir, yours faithfully,

J. ORR EWING,
P. H. LESLIE.

Nov. 24th, 1932.

THE MEDICAL REGISTER

To the Editor of THE LANCET

SIR,—May I remind those who find it essential to know whether a practitioner is legally qualified or not that, in order to facilitate their work, the General Medical Council publishes an office edition of the Medical Register, printed on inexpensive paper and bound in boards, but containing precisely the same names and lists as the more expensive edition. It is issued from this office at a special charge of 10s. post free, but no copies can be supplied unless they are ordered and paid for before Dec. 31st. The Council also issues each month a list of additions to and deletions from the Register, the charge for which will be furnished upon application.

I am, Sir, yours faithfully,

NORMAN C. KING,
Registrar, General Medical Council.

44, Hallam-street, W., Nov. 28th, 1932.

GUY'S HOSPITAL NURSES' TRAINING.—The governors of this hospital have instituted a new scheme by which candidates receive during their 16 weeks' course in the hospital's preliminary training school for nurses not only an elementary course in anatomy, physiology, hygiene, invalid cookery, and allied subjects, but also lectures in more advanced anatomy and physiology. This advanced course has hitherto been taken by probationers only after their entry into the wards as full-time probationers. When the young nurse enters the hospital wards to begin her practical training she will thus be able to devote herself exclusively to her ward work without being harassed by having to attend lectures and classes, and the strain of the early months of training will be lessened. Another innovation is an arrangement whereby probationers from the preliminary training school relieve the junior probationers in the wards for two hours daily, releasing nurses in their second year, in turn, for periods of study during the day, apart from their off-duty time.

MEDICAL SICKNESS ANNUITY AND LIFE ASSURANCE SOCIETY.—The annual meeting of this society was held in London on Nov. 16th. Dr. F. C. Martley, who presided, said that in spite of the very difficult times the new business had been well maintained both in the sickness and life assurance departments. These two funds now amounted to over £800,000. Sickness claims had been larger than normal, probably as a result of the bad times through which everyone had been passing. The society had been appointed one of the three companies to transact the business of the new pension disability and life assurance scheme for National Health Insurance practitioners, inaugurated by the British Medical Association. As this was the year for the quinquennial valuation it was necessary to value the society's stocks, and these had been written down, where necessary, to the market prices, or below. Even when this had been done the total surplus was £143,000. Both the sickness and life funds had been valued on a most stringent 3 per cent. basis, with additional reserves against any unforeseen contingency. A bonus of 12s. per guinea per annum was declared on sickness insurances, and on life assurances the bonus was increased from £1 to £1 3s. per cent. per annum.

The retiring directors, Sir William Willcox and Mr. W. H. Dolamore, were re-elected, and Mr. Lancelot Bromley was elected in the place of the late Dr. F. J. Allen. Messrs. Harber, Sturges, and Fraser were re-appointed auditors.

OBITUARY

SPENCER MORT, M.D. Glasg., F.R.C.S., F.R.S. Edin.

MEDICAL SUPERINTENDENT, NORTH MIDDLESEX COUNTY HOSPITAL

WE announced last week the sudden death of Lieut.-Colonel Spencer Mort, medical superintendent of the North Middlesex Hospital, Edmonton. His death was followed immediately by the expiry of his wife, who was in a precarious state of health and who died on learning her husband's death.

Spencer Mort belonged to a Glasgow family, and was born in that city in 1880. He was educated at the Allen Glen School, under the principalship of Dr. Kerr. The school has been a famous nursery of scientists, but at that early stage in his life Mort showed literary proclivities and contributed to the school magazine prose and poetry. Later, proceeding to the Glasgow University, he graduated as M.B., B.Ch. in 1903, taking honours in every one of his medical subjects from his first year to the fifth, capping these exceptional proceedings by winning the Brunton Memorial Prize, awarded to the most distinguished graduate of the year. Amongst other distinctions, Spencer Mort gained the William Cullen medal for medicine; the John Hunter medal for surgery; the Rainy prize in anatomy and physiology; and soon after completing a house appointment at the Western Infirmary, he was recommended for the McCunn research scholarship in surgery and bacteriology.

COLONEL MORT

Mort now proceeded to the Pasteur Institute, Paris, and lived in the Latin quarter, taking part in the student life and pursuing his research work. Over two years was spent in this way, and after a short time at Munich he returned to Glasgow and became assistant to the Regius professor of surgery, Sir William Macewen. At a meeting of the Medico-Chirurgical Society, at which Sir William Macewen took the chair, he read a paper on the ætiology of neoplasms, the results of his research at the Pasteur Institute. Thus early Mort showed the interest in the special branch of surgical work which was sustained throughout his life. For a time he acted as private assistant to Sir William Macewen, as well as surgical tutor in the Western Infirmary, Glasgow. He proceeded to the M.D. degree in 1913, in which year he took the F.R.C.S. Edin., and was appointed on the surgical staff of the Royal Infirmary, Glasgow, still retaining the surgical tutorship in the Western Infirmary. He began practice as a consulting surgeon, having married Miss Barbara Fraser, who belonged to Ullapool, Inverness-shire.

At this stage in his career there came a great change. To the surprise of all his colleagues in Glasgow he gave up his Glasgow appointments and accepted the position of medical superintendent to the New Infirmary at Edmonton, now the North Middlesex County Hospital; this was in 1910. Mort saw the opportunity of raising the surgical standard of a type of hospital which at that time had not the confidence of the medical public. To quote his own words on appointment, "I will have 500 cases to draw upon for surgical operations." For several strenuous years he worked for his ideals in the management of a general hospital, and the New Infirmary at Edmonton fairly filled the picture of an up-to-date hospital when the war came, and the whole establishment was taken over by the military authorities. Because of Mort's special surgical skill this hospital was made a particular surgical unit for the Eastern Command, receiving patients for surgical treatment direct from the Front. During the years of the war over 50,000 soldiers were dealt with at Edmonton Military Hospital, to which was attached, under the administration of Mort, now with the rank of Lieut.-Colonel, 42 auxiliary hospitals in the county of Middlesex. His work was commended by the War Office in two mentions in dispatches, and in 1920, when the military functions came to an end, Mort set about rebuilding the first-class general hospital, which to-day has a medical staff of 20, and a turnover of 12,000 patients every year.

Of late years Colonel Mort made a study of radium treatment of carcinoma his specialty, and devoted his energy to the physics and chemistry and therapeutic use of radium. He exchanged visits with the leading experts in Germany, Scandinavia, France, and Belgium, his proficiency in modern languages and his previous experience at many continental clinics being here a great asset. He wrote usefully on the subject, and became a recognised authority on this branch of therapeutics. He was elected F.C.S. and F.R.S. Edin., and became a member of the International Society of Surgery. Some 60 or 70 communications to medical literature testify to his wide range of expert knowledge, while his experiences at the North Middlesex Hospital, which he first recorded nearly 20 years ago in a graduation thesis, formed the subject yearly of the annual reports of the institution. He earned the affection as well as the admiration of those brought into intimate contact with him, and his death in ripe manhood is a genuine loss to scientific medicine.

ERNEST CLARKE, C.V.O., M.D. Camb., F.R.C.S. Eng.

CONSULTING SURGEON, CENTRAL LONDON OPHTHALMIC HOSPITAL

WE announced last week the death of Mr. Ernest Clarke, which occurred on Nov. 22nd, at his residence, Bryanston-court, London, in the 76th year of his age.

Ernest Clarke was born in 1857 at Hampstead, the eldest son of Mr. Henry Clark, J.P. He was educated in London, at University College School, whence he proceeded, in 1876, to St. Bartholomew's Hospital with a science exhibition. In 1879 he was elected to a science exhibition at Downing College. At Cambridge he was assistant demonstrator of anatomy in the medical school, but he returned to London as house surgeon to St. Bartholomew's Hospital, and in 1881 graduated M.B. Lond., taking the M.D. degree four years later. He went into general practice in Blackheath, but becoming particularly interested in ophthalmology, he attended the

practice of Moorfields assiduously, obtained the diploma F.R.C.S. Eng., and was elected ophthalmic surgeon to the Miller General Hospital, Greenwich, and the Central London Ophthalmic Hospital, where much of his best work was done. He secured rapidly a large private practice, while his professional position was recognised by the vice-presidency of the Ophthalmological Society of Great Britain and Ireland, and the presidency in 1926 of the Ophthalmological Section of the Royal Society of Medicine. In his presidential address to the section he told how, as long ago as 1881, when he was a student at Moorfields, he was instrumental in introducing into this country the well-known FRIEND test for malingerers. He was chiefly interested in the clinical rather than the purely surgical side of his specialty, and did much to direct the attention of his confrères to the importance of accurate correction of small errors of astigmatism, holding that eyestrain from this cause is potent not only in the production of nervous trouble, but that it may be a factor in the causation of such purely ocular defects as progressive myopia and cataract. Among other aspects of his subject in which he took special interest were the connexion between toxæmia from various causes and capillary hæmorrhages in the retina, and the connexion between premature presbyopia and premature senility. He was not a frequent writer or contributor to scientific debates, but his book, the Refraction of the Eye, written for students, reached several editions and was the clear outcome of varied and close personal experience. He was also the author of An Atlas of Ophthalmoscopy for the Physician, translated Donders's classical treatise on refraction, and wrote the chapter on refraction in Latham and English's System of Treatment.

During the war Clarke, debarred not only by health but by age from serving abroad, did great service as surgeon to several home institutions, notably the King George Hospital, the Queen Alexandra Hospital for officers, the R.A.F. Hospital, and the Masonic War Hospital. The last appointment was doubtless associated with his keen support of the Masonic craft, shown in particular by the part which he played in founding the Freemasons Hospital, to which he became ophthalmic surgeon. For his many public services he received the C.V.O. in 1926. In private life Ernest Clarke was a particularly hospitable and genial man and a distinguished musical amateur.

We have received the following appreciation from Dr. Leonard Williams :—

"Ernest Clarke died as he would have chosen to die—in the fullness of time, with the light of his faculties still burning brightly, and at the stage when the burden of the flesh was beginning to weigh rather heavily upon him. The patience which he displayed in the face of the very real physical sufferings and inconveniences which clouded the last few years of his life was truly exemplary. He hated being crippled, but not only did he never complain, but his incapacities seemed to intensify the virtues of equanimity and tolerance which were such remarkable attributes in a man of his vigour and virility. Ernest Clarke enjoyed his life. He enjoyed his domestic circle: his adored wife and devoted children. He enjoyed his professional success and recognition; much of it won by cheerful perseverance in the face of opposition. He enjoyed his hobbies; his choice collection of silver and furniture, his music and carving. He enjoyed his holidays and recreations; his trips abroad, his golf and croquet at home. He enjoyed the society of his fellows, for he was emphatically what he himself called a 'Christian name' man. To be his friend was immediately to become his intimate. Whatsoever his hand found to do, he did with his might. He loved frankness and open dealing, and viewed with scorn any suspicion of subterranean methods and devious ways. His own cards were always on the table, and he demanded a similar downrightness from others. Ernest Clarke will be sadly missed in many spheres of activity, for he touched life at many points, and always touched it with distinction. He will leave a serious gap in the Masonic world in which he had been active from very early manhood, and in which he had risen to a position of great influence and importance.

"On the purely professional side of his work I am not qualified to share in the very high appreciation which his ophthalmic colleagues so often and so freely express, but I know that by his insistence upon the importance to the general health of correcting small errors of refraction—a feature by which he would like to be remembered—he was instrumental in bringing peace and freedom from pain into an enormous number of suffering lives. He was a very careful and skilful refractionist, and the fact that he had started medical life as a general practitioner placed him in the advantageous position of being able to bring his specialty into a true and helpful perspective. He was not only an oculist; he was a healer."

WILLIAM TREGONWELL COLLIER, M.C., D.M. Oxf., F.R.C.P. Lond.

Dr. W. T. Collier's death at the age of 43 will be deeply regretted. The son of Dr. William Collier, of Oxford, he had practised there since 1920, and had earned the respect and affection of many groups of people who worked with him, or were helped by him. The promise of his later life is cut short by a week's illness beginning with a streptococcal throat.

He was educated at Lynam's School, Oxford, at Rugby School, where he was the head of the School House, and at Balliol College, Oxford. Entering University College Hospital with an exhibition, he was awarded the gold medal in medicine and qualified in 1914. In the following year he entered the Royal Army Medical Corps, and was drafted to Cairo. He was with the Imperial Camel Corps at the second battle of Gaza, when he was wounded, and for services in that action he received the Military Cross. On demobilisation he took the M.R.C.P. and began practice in Oxford. He was elected assistant physician to the Radcliffe Infirmary in 1921, and in that capacity acted as assistant to the Regius professor of medicine. In 1931 he became physician-in-charge of beds at the Radcliffe Infirmary, and last spring he was elected a Fellow of the Royal

DR. W. T. COLLIER
[Photograph by Gillman

College of Physicians. He was interested in many branches of clinical medicine, especially diabetes, and as a physician he continued to work in the pathological laboratory of the hospital on morbid anatomy and clinical pathology. The last of his contributions to THE LANCET was a note on thrombophlebitis migrans, published about a year ago.

Outside his medical work Collier was well known in Oxford for his interest in boys' clubs, which began when he was an undergraduate at Balliol. As president of the Stephen Reiss Club (formed for old boys of the Balliol club), and as chairman of the juvenile organisation committee, he was able to do much for the smaller boys of the city. Where his patients were concerned no exertion seemed irksome or too great. He was quiet in manner, somewhat retiring by nature, and unusually sincere. A medical friend writes of him that "he was one of the most charmingly simple and completely disinterested people I have known."

An old weakness of the right arm prevented Dr. Collier from excelling in games, but he was a good climber and spent most of his holidays in Cumberland or in Switzerland. He married Miss Dora Butterworth, who survives him with two sons.

LOUIS ALOYSIUS BYRNE, F.R.C.S. Irel.

Mr. Louis Byrne, coroner for Dublin, died at his residence, Killiney, Co. Dublin, on Nov. 26th, at the age of 75. He had been in failing health for the past year or two, but had been going about until shortly before his death.

Byrne was born in Dublin, and as a young man obtained employment as a clerk, at first in the service of a distillery, and later in that of the corporation of Dublin. He attended the "night classes" in medicine formerly held in some of the Dublin schools, and by 1886 had qualified as L.R.C.S. and L.R.C.P. In 1889 he proceeded to the Fellowship of the Royal College of Surgeons, of whose council he was subsequently a member for many years. Soon after becoming a Fellow he was appointed surgeon to Jervis-street Hospital, and from this post he retired only last year. In 1900 he succeeded the late Dr. Joseph Kenny as city coroner.

Byrne's duties as coroner kept him much before the public, but he himself took most pleasure in his work as surgeon to Jervis-street Hospital. "Day and night for 40 years he was unceasingly at the service of his patients there," writes a colleague. "No emergency arrived at too inconvenient an hour for him to answer the call, and no attention was too great for him to render his patients. As coroner he performed his duties courteously but firmly, and his patience and kindliness made his court a model of what a coroner's court should be. To young advocates appearing before him and to young medical men called to give evidence he was always helpful and considerate. In private life he was a cheery companion and a firm friend."

MEDICAL NEWS

University of London

At recent examinations the following candidates were successful:—

D.P.M. (with special knowledge of Psychiatry).—Sidney Davies and Maeve Whelen.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

MASTERY OF MIDWIFERY

Harry Freeman, M.R.C.S., Doris Eleanor Parker Jolly, M.B. Lond., and Paul Kuhne, M.D. Lausanne.

A yeomanry dinner will be held in the hall of the society, Blackfriars, E.C., on Tuesday, Dec. 6th, at 7.15 for 7.30 P.M.

British Social Hygiene Council

The conference on biology in the elementary schools, which is being held on Saturday, Dec. 3rd, under the auspices of this council, has been transferred to the London School of Hygiene and Tropical Medicine, Keppel-street.

Pharmaceutical Society of Great Britain

Sir Henry Dale will deliver the Harrison Memorial lecture at the society's house, 17, Bloomsbury-square, London, W.C., on Dec. 13th, at 8.30 P.M., the subject being Therapeutic Problems of the Future. After the lecture the president will present to Sir Henry the medal which commemorates the late Colonel E. F. Harrison, director of chemical warfare.

Royal Surgical Aid Society

The seventieth annual meeting of this society will be held at the Mansion House, London, at 4 P.M. on Monday, Dec. 5th, with the Lord Mayor in the chair. The speakers will include the Bishop of Southwark and Mr. G. Gordon-Taylor, M.S. The society's offices are in Salisbury-square, Fleet-street, E.C.4.

College of Physicians of Philadelphia

Alvarenga Prize.—The next award of this prize, amounting to about 300 dollars, will be made on July 14th, 1933. Essays on any subject in medicine will be considered, provided they have not appeared in print in any form, and have not been presented elsewhere in competition for a prize. They must be in prescribed form, and must be received by the secretary of the College by May 1st. No award was made last year.

London Jewish Hospital

Lord Reading will take the chair at the festival dinner of this hospital, to be held at the Park Lane Hotel, Piccadilly, at 7.30 for 8 P.M., on Thursday, Dec. 15th. The hospital has had a deficit on its maintenance account for two years in succession, and despite the prevailing economic conditions the council of management consider it essential to provide for prospective deficits and to pay off an existing overdraft of £10,000. They are therefore appealing for £15,000. The chairman of the dinner committee is Dr. A. Goodman Levy.

Instruction for D.P.M.

A series of lectures and practical courses will be given from January to May, 1933, at the Maudsley Hospital, Denmark-hill, London, S.E., primarily to candidates for diplomas in psychological medicine. The lecturers and demonstrators are Dr. F. L. Golla, Captain S. A. Mann, Prof. W. Le Gros Clark, Mr. Charles Geary, Dr. Henry Devine, Dr. Edward Mapother, Prof. F. A. P. Aveling, Dr. F. C. Shrubsall, Dr. T. Tennent, Mr. Foster Moore, Dr. Bernard Hart, Dr. A. J. Lewis, Dr. William Moodie, Sir Hubert Bond, and Dr. W. Norwood East. Particulars of the course, which begins on Jan. 2nd, may be had from Dr. F. L. Golla, honorary director of the medical school, at the hospital.

British Institute of Radiology

The annual congress of this institute, which is incorporated with the Rontgen Society, will be held at the Central Hall, Westminster, from Dec. 7th to 9th, under the presidency of Prof. F. L. Hopwood, D.Sc. Sir George Newman will open the congress at 2.30 P.M. on Wednesday, and at 5 P.M. on the same day Mr. James Chadwick, F.R.S., will deliver the Mackenzie Davidson lecture, entitled The Neutron. The Sylvanus Thompson lecture will be given at 5 P.M. on Thursday by Lord Lee, chairman of the Radium Commission and trustee of the National Radium Fund, whose subject is Radium as a Therapeutic Agent—the Case for National Control. Prof. Hopwood will deliver his presidential address at 2.30 P.M. on Friday. Further particulars of the meetings will be found in our Medical Diary. An exhibition of apparatus, organised by the British X Ray Industry, will be in progress at the Central Hall from 10 A.M. onwards each day. The annual dinner will be held at the Empire Rooms, Trocadero Restaurant, Piccadilly-circus, W., on Friday, Dec. 9th, at 7.15 for 7.30 P.M. Prof. Hopwood will preside, and tickets may be had from the hon. treasurer, 32, Welbeck-street, London, W.1.

Institute of Medical Psychology

The chairman (Sir Henry Brackenbury) and the council and staff of this institute are holding receptions at their new premises in Torrington-place, London, W.C., on Friday and Saturday, Dec. 9th and 10th. The building will be open for inspection from 4 to 5 P.M., after which there will be short meetings. On Friday the speakers will be Sir Walter Fletcher and Dr. Bernard Hart, and on Saturday Prof. W. Langdon Brown and Prof. W. W. Jameson.

Irish Medical Schools' and Graduates' Association

Dr. F. Howard Humphris took the chair at the autumn dinner of this association on Nov. 24th at the Dorchester Hotel. After the loyal toast had been honoured, Colonel G. A. Moore proposed "Our Guests." He praised the Irish as a highly civilised island race, laughter-loving, law-abiding, humble, and the most moral of all nations, but claimed as one of their chief capacities the art of extracting delight and pleasure from the company of their friends. Lieut.-Colonel C. T. Samman, proposing "The President and Association," declared that the association embraced in its outlook on medical science a long and worthy tradition. It was an essential element in the professional life of this country, and its position was as strong as it had been when the first Medical Register was published. Among the great Irish graduates of medical history had been William Petty, who had been the first man to combine mathematics with medicine and to arrange statistical tables, but his fame rested rather on his feat of restoring to life an old woman who had been hanged by strangulation. Another Irish graduate, the Reverend Sam Haughton, had introduced the drop into judicial execution. Norman Moore, besides being a member of the General Medical Council, had collected all the ancient Irish manuscripts on medicine and translated them into English. Corrigan, famous for his button, had done noted work on the pulse; Graves had named the disease of exophthalmic goitre, and had shown his clinical genius in the revolutionary remark: "I feed fevers." Stokes—a name to conjure with in Ireland—had introduced the stethoscope and was the ancestor of Adrian Stokes, who had done wonderful research work in Africa, and whose name was commemorated in a biannual scholarship in bacteriology. Colonel Samman concluded by a tribute to the professional and personal merits of the president, who replied in an amusing manner.

Royal Dental Hospital of London

The annual dinner was held on Nov. 26th at the Dorchester, Prof. W. H. Gilmour presiding. In proposing the toast of the hospital and school, he expressed gratification that in spite of the economic depression each group of students had been absorbed into the profession before the next group qualified. The incomes of dental practitioners might be reduced through the inability of patients to pay their bills, but at least they had plentiful employment. Dentistry had been almost the last of the professions to feel the depression, and would probably be among the first to recover, because though many people were delaying visits to the dentist, they could not delay them indefinitely. When the recovery came there would probably be a shortage of qualified dentists. Mr. Harry Stobie, the dean of the school, in reply, congratulated Prof. Gilmour on holding the first chair of dental surgery to be instituted in this country. Academic recognition for dentistry was needed for the full development of the profession. Speaking of the finances of the dental school and hospital, Mr. Stobie said that, owing to the generosity of the Dental Board, electric units had been supplied to the hospital to replace the obsolete foot-pedal apparatus. Financial assistance was badly needed in the departments of orthodontics, research, and X rays. The decision to admit no further women students after May, 1933, he regarded as a purely domestic matter which was associated with the fact that the school was the only one in London not directly connected with a general hospital, and received students from all the London teaching hospitals which had no dental departments. Twenty-three students had entered the school this year. Mr. Stobie referred to the innovation whereby candidates for the L.D.S. R.C.S. Eng. had now to pass an examination in medicine and pathology as well as in chemistry and physics. He spoke of various changes in the staff, and regretted particularly the resignation, after 25 years of work in the school, of Mr. J. G. Turner, who had been succeeded by Mr. L. E. Claremont. Mr. E. W. Fish proposed, with appropriate comments, the health of the many guests, and Sir Holburt Waring responded. He explained the conditions under which alone the Dental Board were empowered to help dental schools. They were not concerned with the treatment of the necessitous poor, but could give grants for improvement of equipment for teaching. Sir Holburt commented on the lack of provision for post-graduate teaching, and on the possibility that a higher diploma in dentistry might be instituted by the Royal College of Surgeons of England. No candidates had been forthcoming for the dental M.S. which had been instituted by the University of London, though it had been established for 20 or 30 years, but the recent establishment of a B.D. degree was having more success. There need be no fear that the examinations in medicine and pathology to which Mr. Stobie had referred would be onerous, but the regulations previously in force, which insisted on attendance at lectures without any subsequent examination, were obviously open to abuse. Mr. S. F. Steadman proposed the health of the chairman, and this concluded the formal proceedings, which had been enlivened by pleasant musical interludes.

Caledonian Medical Society

On Nov. 23rd this society met in London for the first time for many years, and over 80 members and guests were piped into dinner at the May Fair Hotel. The chairman was Dr. John Matheson, of Blackheath, and the evening owed much of its success to the Gaelic and Scottish songs of his daughter, Miss L. Matheson, and her playing of the clarsach or Highland harp. The toast of the society was proposed by Capt. W. S. Morrison, M.P. for Cirencester, who recalled that when he edited the *Student* at Edinburgh all the best contributions came from the aspirants to medicine. To think of the work being done by doctors in the remote highlands and islands was an antidote, he said, to any narrow or distorting view of the profession, and he congratulated the chairman on being for years a rallying-point in the national life. Dr. Matheson, while agreeing that the preservation of Gaelic culture was very important, said that it was also necessary to enrich English culture with Gaelic ideas. Much that was good in English literature was already due to Celtic inspiration. Dr. Henry Yellowlees proposed the health of the guests in a long and amusing speech, introducing a Scot's complaint about the recent removal of the amber light from London traffic signals. "How on earth," he said, "do they think we're going to have time to start our engines again?" The Rev. Joseph Moffett replied to the toast with the weight of five medical generations behind him. Sir Ashley Mackintosh proposed the health of the chairman (whom he had known from student days in Aberdeen, and the officers) of the club; and replies were made by Dr. Donald Ross, of Lochgilphead, who has succeeded the late Dr. Rutherford Macphail as secretary, and Dr. Cumming Grant, who arranged the dinner.

Among the entertainments which helped to make the evening delightful were Dr. Dan McKenzie's racy recitation of one of his own poems in broad Scots, Dr. George McKinnon's playing on the pipes, violin solos by Miss Maclennan, and songs by Mrs. Lachlan Grant, and Mr. Robbs.

The Social Aspects of Birth Control

A public meeting of the National Birth Control Association was held on Tuesday, Nov. 29th, at the Caxton Hall, Westminster, when the Countess of Limerick gave an address on Some Social and Economic Aspects of Birth Control. Sir Thomas Horder, who presided, said that at long last the birth control movement was emerging from the stage of voluntary effort to be linked up with economic and social welfare problems. The next development—which perhaps was overdue—was that the birth control movement should take its place quite definitely and systematically among the health services of the country. The machinery for such a step already existed—he referred to the attitude of the Ministry of Health in its relation to local authorities. It was quite practicable that instruction in contraceptive methods could be given officially and by the sympathetic attitude of the Ministry of Health. In August of this year the report of the departmental committee on maternity mortality called special attention to the avoidance of child-bearing by women suffering from disease where child-bearing was likely to injure health. It seemed to be a natural consequence of this that the Ministry should be urged to make available for these women and their husbands the necessary instruction. Lady Limerick said that many of the objections raised against birth control were based upon the non-recognition that purely permissive measures were the bringing within the knowledge of all classes those aids to health and family life which were now within the reach of only a few. Birth control did not imply a moral outlook, but did imply in its consideration of the unborn child a proof of critical, thoughtful, and moral standard. The experience of workers in voluntary clinics showed that it was the normal married woman, unwilling to go to chemists' shops, but desiring skilled and reputable advice, who attended clinics. Replying to the accusation that the use of contraceptives interfered with nature, she said that the whole course of curative and preventive science was now accepted as an attempt to modfy the wasteful methods of nature. The idea of eugenics was to lead the masses to understand fully their responsibility towards their own health and that of their possible descendants. Positive measures which were indispensable to any method

of conscious selection for the progressive improvement of the stock involved contraceptive control. There was need, she said, for more clinics, while the realisation of parental responsibility marked a higher stage in moral and ethical development than thoughtless procreation. Lady Denman, emphasising the need for birth control, gave several examples of the evils among the very poor in regard to housing owing to unrestricted births, maintained that birth control advice should be a part of the health system of the country.

Maternal Mortality

In a Chadwick lecture delivered at Gateshead on Nov. 25th, Dame Louise McIlroy said that many people were inclined to foster the idea that maternal deaths were on the increase, and that at least half of them could be prevented if the doctor or midwife had been more skilled or the patient more amenable. These ideas were held as a rule by people who had little or no real knowledge of clinical medicine or obstetrics. If an investigation were made into the general medical or surgical mortality of the country the same conclusions would be the result. Most diseases might be preventable provided there was the requisite knowledge of causes and prevention as a whole. There were bound to be occasional fatalities among women in childbirth, no matter how much care and skill was available. There was danger in the scaremongers, for their psychical influence upon the expectant mother might be bad. The mother's safety often lay to a great extent in her attitude of mind, and the banishment of fear was the most important therapeutic agent we possessed in maternity practice.

Safe Milk

Sir Hilton Young (Minister of Health), Lord De La Warr (Parliamentary Secretary of the Ministry of Agriculture and Fisheries), and Mr. A. N. Skelton, M.P. (Parliamentary Under-Secretary of State for Scotland), received a deputation on Nov. 24th from the People's League of Health. The deputation was introduced by Sir Thomas Horder, and the other speakers were Lord Moynihan, Dr. W. G. Savage, Sir Archibald Weigall, Prof. F. T. G. Hobday, and Dr. Norman Wright. The object of the deputation was to submit to the Government a resolution passed at a Mansion House meeting on July 11th, 1932, approving of the report of the People's League of Health on tuberculosis of bovine origin in Great Britain, and urging the imperative need of giving early practical effect to the proposals it contains. Sir Thomas Horder said that the report contained recommendations designed to ensure the safety of the milk-supply, and therefore, indirectly, an increase in the consumption of milk which would be in the interests alike of consumer and producer. Lord Moynihan said that the ideal method of preventing milk-borne disease would be to ensure the purity of raw milk, but, failing this, pasteurisation should be adopted. He did not believe that the objections brought against pasteurisation had weight. Any diminution in the nutritive value of milk due to pasteurisation could easily be remedied by the supply of other articles of diet; it was, however, essential that the process of pasteurisation should be carefully controlled. Dr. Savage said that at present no urban area had power to protect its milk-supply. The deputation desired to urge upon the Government three main lines of action—that (1) active steps to reduce bovine tuberculosis; (2) active encouragement of tuberculin tested herds; (3) pasteurisation of milk. The deputation was not asking for universal pasteurisation at present, but only that municipalities should have power to require that all milk sold in their districts should be derived from tuberculin tested herds or be pasteurised. Sir Archibald Weigall, speaking on behalf of the Royal Agricultural Society of England, said that the ultimate ideal should be tubercle-free national livestock, but the report was agreed upon as the best half-way house. Prof. Hobday explained some of the detailed recommendations contained in the League's report, and Dr. Wright said that experience in Scotland fully confirmed the need of action on the lines recommended in the report. The Minister of Health said that he fully appreciated the importance of the questions raised, and the great value of the report, of which the recommendations were generally in consonance with the policy of the Ministry of Health. He was in full sympathy with the desire to increase the consumption of milk, and agreed that it was essential to give the public confidence in the safety of the milk-supply. He was interested to hear the expert views of the deputation on the question of pasteurisation, and proposed to ask the cattle diseases committee of the economic advisory council to consider the subject and advise upon it. It would be necessary also, before coming to any definite conclusions, to await the report of the Milk Reorganisation Commission. Lord De La Warr said, that while the financial aspects of the questions raised by the deputation could not be ignored, the Minister of Agriculture fully appreciated their importance and would welcome any practical steps that would assist the sale of milk or improve the health of stock.

Vacancies

For further information refer to the advertisement columns

All Saints' Hospital for Genito-Urinary Diseases, Austral-street, S.E.—Res. H.S. At rate of £100 to £150.

Altrincham General Hospital.—Sen. and Jun. H.S.'s. At rate of £150 and £120 respectively.

Bedford County Hospital.—Second H.S. At rate of £140.

Birmingham and Midland Eye Hospital.—Res. Surg. O. £150.

Bradford Royal Eye and Ear Hospital.—Jun. H.S. £150.

Buckinghamshire C.C.—Asst. M.O.H. £500.

Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency Officer. £130.

Chester Royal Infirmary.—H.S. £150.

Children's Hospital, Hampstead, N.W.—Res. M.O. At rate of £100.

City of London Maternity Hospital, City-road, E.C.—Asst. Obstetric Surgeon.

Coventry and Warwickshire Hospital.—Res. H.P. and Res. Cas. O. £160 and £125 respectively.

Cumberland C.C.—Consultant in Gynæcology and Obstetrics.

Dreadnought Hospital, Greenwich.—Med. Supt. £150.

East Ham Memorial Hospital, Shrewsbury-road, E.—Res. M.O. At rate of £200.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., Obstetric Asst., Three H.S.'s. Each at rate of £50. Also Sen. and Jun. Clin. Assts.

Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.

Guildford, Royal Surrey County Hospital.—H.S. £150.

Hampshire C.C.—Asst. County M.O. £600.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. At rate of £100.

Hospital for Sick Children, Great Ormond-street, W.C.—Research Fellow. £400.

Hospital for Women, Soho-square, W.—Registrar. £50.

Indian Medical Service.—Commissions.

Jersey General Hospital and Poor-law Infirmary.—Res. M.O. £200.

Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.

Liverpool, Broadgreen Sanatorium.—Asst. Res. M.O. £200.

Liverpool, Stanley Hospital.—Gynæcological H.S. At rate of £100.

Liverpool, Waterloo and District General Hospital.—H.S. £100.

Manchester, David Lewis Epileptic Colony.—Res. Med. Director. £700.

Manchester Royal Infirmary.—First Asst. in Clinical Laboratory. £350.

Midlothian, New Saughton Hall Private Asylum.—Med. Supt.

Milford, Surrey, County Sanatorium.—Third Asst. Res. M.O. £250.

Miller General Hospital, Greenwich-road, S.E.—Cas. O. At rate of £150.

Northampton General Hospital.—H.S. to Ear, Nose and Throat Dept. At rate of £150.

North Middlesex County Hospital.—Res. Asst. M.O. £400.

Nottingham City Infirmary.—Third Res. M.O. £350.

Nottingham General Hospital.—H.S. At rate of £150.

Princess Beatrice Hospital, Richmond-road, Earl's Court, S.W. Res. M.O. At rate of £110.

Princess Elizabeth of York Hospital for Children, E.—Hon. Physician to Special Dept. £100.

Princess Louise Kensington Hospital for Children, St. Quentin-avenue, N. Kensington, W.—H.P. At rate of £100.

Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Assts.

Royal London Ophthalmic Hospital, City-road, E.C.—Refraction Asst. for L.C.C. Dept. At rate of £160.

Royal Northern Hospital, Holloway, N.—Second Ophth. Surgeon.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Gynæcological Registrar.

St. Bartholomew's Hospital.—Surgeon.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Fourth Anæsthetist. £25. Also Clin. Assts. to Members of Hon. Staff.

St. Thomas's Hospital, S.E.—Surgeon. Also Chief Asst. to Ear, Nose and Throat Dept.

Salford Royal Hospital.—Res. Surg. O. At rate of £200. Also H.P., two H.S.'s to Special Depts., and Cas. H.S. Each at rate of £125.

Salvation Army Mothers' Hospital, Lower Clapton-road, E.—Jun. Res. M.O. At rate of £60.

Sheffield Children's Hospital.—Res. M.O. £175.

Southampton, Royal South Hants and Southampton Hospital.—Res. Surg. O. At rate of £200. Also H.P., Two H.S.'s, and Cas. O. Each at rate of £150.

Sutton, Surrey, Downs Hospital for Children.—Res. Asst. M.O. £350.

Tunbridge Wells and Counties General Hospital.—H.S. £160.

West Bromwich, Hallam Hospital.—Res. H.S. £200.

West London Hospital, Hammersmith-road, W.—H.P. and Two H.S.'s. Each at rate of £100. Hon. Med. Reg. Also Gynæcologist.

Winchester, Royal Hampshire County Hospital.—Clin. Asst. for Ophth. Out-patient Dept.

Woolwich and District War Memorial Hospital, Shooters-hill, S.E.—Hon. Anæsthetist. Also H.P. and H.S. Each at rate of £100.

Wrexham and East Denbighshire War Memorial Hospital.—Two Res. H.S.'s. At rate of £150.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Bills Presented

IN the House of Commons on Tuesday, Nov. 29th, Mr. BANFIELD presented a Bill to prohibit nightwork in bakehouses, and Sir ROBERT GOWER presented a Bill to prohibit the vivisection of dogs. Both Bills were read a first time.

HOUSE OF COMMONS

THURSDAY, NOV. 24TH

Typhoid Fever in Yorkshire

Mr. PRICE asked the Minister of Health whether, in view of the serious outbreak of typhoid fever in Denby Dale and Malton, Yorks, he would order a public inquiry.—Sir E. HILTON YOUNG replied: A specially qualified medical officer of my department has been investigating these outbreaks on the spot since I was first informed of them, and he remains in close touch with the local authorities concerned. I am advised that in both places the infection was water-borne, and that the source of the infection has been traced and eliminated. Steps to procure a water-supply free from risk of contamination are under consideration by the respective local authorities in close consultation with my department. After full investigation an official report on the outbreaks will be published, which will be brought specially to the notice of the authorities concerned. These measures will best serve the purpose indicated in the question, and I do not think that the procedure of a public inquiry would add anything useful.

Mr. PRICE: When the report is published will it be furnished to other local authorities to enable preventive measures to be adopted in other districts?

Sir E. HILTON YOUNG: I will certainly consider the suggestion.

Mr. CHORLTON: Will the inquiry be extended to other districts where the water may also be suspect?

Sir E. HILTON YOUNG: The inquiry in question concerns a particular district. Undoubtedly if there is cause for inquiry in neighbouring districts this will put the responsible authorities on their mettle.

Condition of Casual Wards

Mr. THORNE asked the Minister of Health whether his attention had been called to the conditions in the casual wards at Alton and Alresford institutions, respectively; and if, in view of the complaints made about them, he would cause an inquiry to be made into the question of their fitness for habitation.—Sir E. HILTON YOUNG replied: The answer to the first part of the question is in the affirmative; the authorities responsible for the administration of the relief of casuals in this area propose, however, to close both these wards as soon as plans for extending and improving certain neighbouring wards have been completed, and in the meantime I do not propose to press these authorities to incur expenditure upon their improvement.

Fatal Accident at London School

Captain CUNNINGHAM-REID asked the Parliamentary Secretary to the Board of Education if he was aware that there have been numerous cases of injury from wood splinters to scholars at the London County Council elementary school, Barrow Hill-road, St. John's Wood, and that one of these cases led to the death of a child named Alice Florence Staggs, aged 8 years; and if he would make a statement on the matter.—Mr. HERWALD RAMSBOTHAM (Parliamentary Secretary to the Board of Education) replied: I have been informed of this most unfortunate occurrence, and that subsequent to it two other complaints have been made. The matter, however, is entirely for the London County Council, who, I understand, are investigating it most carefully.

FRIDAY, NOV. 25TH

Duty on Liquorice Juice

Sir JOSEPH NALL asked the Secretary to the Treasury whether payment of drawback of the general ad valorem duty on pure-block liquorice juice was now authorised in respect of export goods made from this material.—Mr. HORE-BELISHA replied: No drawback of the duties chargeable under the Import Duties Act, 1932, has been authorised in the case of exported goods made from pure-block liquorice juice.

MONDAY, NOV. 28TH

The Spahlinger Vaccine

Mr. GROVES asked the Minister of Agriculture whether he had received any information as to experiments conducted by the government of Northern Ireland in connexion with Spahlinger's vaccine for tuberculosis in cattle; and, if so, whether he could give any information regarding these experiments.—Major ELLIOT replied: I have communicated with the Minister of Agriculture for Northern Ireland and am informed by him that satisfactory progress is being made, and that an interim report will be issued by his department in a few days.

Coal Tar and Cancer

Sir ARTHUR MICHAEL SAMUEL asked the Minister of Health whether his records showed an increase or a decrease in the incidence of cases of cancer in the lung over a period of recent years; and whether various uses of coal-tar products in general, and the use of coal-tar on roads in particular, had been investigated as possible causes of cancer in the lung among the public and those employed in spraying roads with tar.—Sir E. HILTON YOUNG replied: No figures are available as to the incidence of this disease, but the mortality statistics show an increase in recent years in the number of deaths attributed by medical certificate to cancer of the lung. I am advised that a proportion of this increase may be assigned to improved means of diagnosis. The answer to the second part of the question is in the affirmative. These investigations are being continued, but I am advised that prolonged inquiries will be necessary before any definite conclusions can be reached.

Sir E. HILTON YOUNG, replying to a further question by Sir A. M. Samuel, said that he could not state the exact scope of the investigations without notice, but they would certainly include the whole field of knowledge which contributed to a useful conclusion on the effect of coal-tar.

Commander O. LOCKER-LAMPSON asked whether the increase in smoking was not one of the greatest contributory forces, and whether that also would be inquired into.

Sir E. HILTON YOUNG replied that he did not like to give a definite answer to that question, but it did not follow.

Survey of Water-supplies

Mr. LEVY asked the Minister of Health if he would make arrangements for a survey of our water resources and of the areas which had no adequate supply and consider, in conjunction with the appropriate local authorities, the provision of proper water-supply for such areas.—Sir E. HILTON YOUNG replied: A survey comprehensive enough to be of value is possible only after detailed local investigation, and to embark on a special survey would cost a good deal of public money. The policy of the Ministry is to encourage the formation of advisory regional water committees for ascertaining local needs, and formulating a programme of the best means of meeting them. Officers of the Ministry collect information locally. Applications for loans for water schemes are being constantly made to me, and are carefully considered by my expert advisers.

Mr. LEVY asked the Minister of Health what schemes for the provision or improvement of the water-supply had been submitted to his department during the past 12 months; and what action, if any, was taken on them.—Sir E. HILTON YOUNG replied: The information requested would have to be specially prepared, and therefore I am not able to furnish my hon. friend with it at the moment. I may, however, state that during the 12 months ended Sept. 30th, 1932, loans amounting to £2,180,000 were sanctioned. I am not aware of any case where an application for loan has been refused for satisfactory works which were self-supporting.

TUESDAY, NOV. 29TH

Typhoid Outbreak at Malton

Mr. TURTON asked the Minister of Health what was the present position of the outbreak of typhoid at Malton; and whether, in the view of the medical authorities, it was now or had been at any time dangerous for anyone to visit the town or to buy or consume goods produced, manufactured, or offered for sale in the town of Malton.—Sir E. HILTON YOUNG replied: The outbreak has followed a course characteristic of outbreaks due to such causes. A small number of secondary cases are still being notified amongst persons who were nursing, or were otherwise intimately associated with, primary cases before the latter were removed to hospital. Up to and including Nov. 26th, the total number of cases was 265, of which 18 were fatal. The daily notifications during the last week of that period were 2, 6, 0, 2, 0, 0, and 2 respectively. As regards the

second part of the question, I am advised that the cause of the outbreak was a polluted water supply. The special danger from the water was removed on Oct. 27th, and there is no evidence that at any time any article of food (other than water) or any article of commerce shared in the conveyance of infection.

Mr. TURTON asked whether the Minister was aware that there existed a virtual boycott of the town because people were afraid to visit it or buy goods at it; and would he see that the facts he had stated would be published in the locality.

Sir E. HILTON YOUNG: I have no doubt that the answer I have given will secure that purpose.

Medicine Stamp Acts

Sir ALFRED BEIT asked the Chancellor of the Exchequer whether he was in a position to add anything to his answer of May 12th with regard to amending the Medicine Stamp Acts.—Mr. CHAMBERLAIN (Chancellor of the Exchequer) replied: I am not yet in a position to make any further statement on the subject of the Medicine Stamp Acts, but I can assure my hon. friend that the position under the Acts is receiving careful consideration.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 6th.—8.30 P.M., PATHOLOGY. Communications. Dr. V. D. Allison: A Simple Method of Obtaining Pure Primary Cultures of Ringworm. Dr. Dorothy Russell: Histological Variations in Meningiomas. Dr. Oliver Heath: Phagocytosis of Clumps in *B. typhosus* Vaccine Fever. Dr. J. R. Marrack: Molecular Structure of Protein in Relation to Immunology. Demonstration. Dr. Joan Ross: Case of so-called "Hodgkin's Sarcoma." 8.30 P.M., ORTHOPÆDICS. Papers. Mr. H. J. Seddon: Calcaneo-scaphoid Fusion. Mr. W. H. Ogilvie: Rôle of Surgery of the Sympathetic System in Infantile Paralysis. Cinematograph demonstration. Mr. N. Capener: Alternating Sciatic Scoliosis.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Papers. Sir John Thomson-Walker: Crosse and his Colleagues at the Norfolk Hospital. Mr. W. T. Bishop: The Autobiographies of British Medical Men. 8 P.M., RADIOLOGY. Papers. Dr. Gilbert Scott: X Ray Diagnosis of Osteo-arthritis. Dr. Langmuir Watt: X Ray Treatment of Osteo-arthritis. A discussion will follow. 8.30 P.M., SURGERY. Discussion: Cleft Palate. Opener: Mr. W. E. M. Wardill. Followed by Sir Harold Gillies and Mr. T. Pomfret Kilner. Members of the Section of Odontology are specially invited to attend.

FRIDAY.—5 P.M., CLINICAL. (Cases at 4 P.M.) Speakers: Prof. H. H. Woollard: Anatomy and Physiology of the Spleen. Prof. E. H. Kettle: Pathology of the Spleen. Cases: Dr. Bernard Myers: 1. Splenectomy for Essential Purpura Hæmorrhagica. 2. Splenectomy for Gaucher's Disease. Mr. W. S. Gabriel: 3. Splenectomy for Primary Tuberculosis of Spleen. Dr. H. S. Le Marquand and Dr. J. Mills: 4 and 5. Splenectomy for Purpura. 6. Acholuric Jaundice. Dr. Terence East: 7. Chronic Hæmolytic Anæmia Treated by Splenectomy. Dr. L. J. Livingstone: 8. Splenectomy for Acholuric Jaundice. Dr. Alan Moncrieff: 9. Splenic Anæmia in a Child. 10. Splenectomy for Gaucher's Disease. Dr. Hildred Carlill and Dr. R. J. Pulvertaft: 11. Splenectomy for Myeloid Leukæmia. Dr. D. C. Hare: 12. Polycythæmia Rubra Vera. Dr. Thomas Hunt: 13. Polycythæmia. 14. ? Splenic Anæmia of 22 years' Duration. Dr. Maurice Shaw: 15. Non-familial Acholuric Jaundice, one year after Splenectomy. Other cases will be shown. 5 P.M., OPHTHALMOLOGY. Clinical Meeting at the Royal Westminster Ophthalmic Hospital, Broad-street, W.C. Tea at 4.30 P.M. Cases will be shown.

HARVEIAN SOCIETY OF LONDON.

THURSDAY, Dec. 8th.—8.30 P.M. (in the Town Hall, Paddington), Discussion on Migraine, to be opened by Dr. M. Critchley and Dr. F. R. Ferguson.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Dec. 8th (at Manson House, 26, Portland-place, W.).—7.45 P.M., Demonstration of Apparatus used for Measuring Humidity. 8.15 P.M., Dr. P. A. Buxton: The Effect of Climatic Conditions upon Populations of Insects (illustrated by lantern slides). A discussion will follow.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Royal Northern Hospital, N.

FRIDAY, Dec. 9th.—9 P.M., Dr. R. P. Garrow: Diagnosis of Health.

WEST KENT MEDICO-CHIRURGICAL SOCIETY, Miller Hospital, Greenwich.

FRIDAY, Dec. 9th.—Dame Louise McIlroy: Recent Investigations into the Causation and Prevention of Stillbirths and Neonatal Deaths.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY, Dec. 8th (at 11, Chandos-street, W.).—Dr. Laura Hutton and Dr. Hilda Weber: Parental Influence and the Neurotic Character (with discussion).

BRITISH INSTITUTE OF RADIOLOGY.

WEDNESDAY, Dec. 7th (in the Central Hall, Westminster).—10 A.M., Exhibition. 2.30 P.M., Annual Congress, to be opened by Sir George Newman. 5 P.M., Mr. James Chadwick, F.R.S.: The Neutron (Mackenzie Davidson lecture).

THURSDAY.—10 A.M., Mr. C. Norman Kemp: Industrial Radiology. Mr. G. W. C. Kaye and Mr. W. Binks: An International Comparison of the Rontgen, the Unit of Quantity of X Rays. Dr. H. Franke (Hamburg): New Possibilities in Radiographic Technique with the Rotalix Tube. Mr. W. E. Schall: A 500 K.V. Villard Unit. 2.30 P.M., Dr. N. S. Finzi: The Ætiology, Diagnosis, and Medical Treatment of Late X Ray Effects. Sir Harold Gillies and Mr. A. H. McIndoe: Plastic Surgery in Chronic Radio-dermatitis and Radio-necrosis. 5 P.M., Lord Lee: Radium as a Therapeutic Agent—the Case for National Control (Sylvanus Thompson memorial lecture).

FRIDAY.—10 A.M., Dr. Ralston Paterson: Classification of Tumours in Relation to Radio-sensitivity. Dr. J. N. Jacobson: Fractures of the Upper End of the Femur in the Aged. Dr. T. D. Overend: The Relief Study of the Stomach and Colon. Dr. E. Rohan Williams: X Ray Investigation of Carpal Injuries. 2.30 P.M., Prof. F. L. Hopwood: Presidential Address.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 5th, to SATURDAY, Dec. 10th.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Tues., at 4 P.M., Mr. J. Swift Joly: Renal Calculus. (Free to Members.)—LONDON LOCK HOSPITAL, Dean-street, W. Course in Venereal Disease, afternoons and evenings.—BRITISH RED CROSS CLINIC FOR RHEUMATISM, Peto-place, Marylebone-road, N.W. Lecture-demonstrations on Diagnosis and Treatment of Chronic Rheumatism, Tues. and Thurs. at 8.30 P.M.—INFANTS' HOSPITAL, Vincent-square, S.W. Course in Infants Diseases, afternoons.—BLACKFRIARS SKIN HOSPITAL, Blackfriars-road, S.E. Course in Dermatology every afternoon from 2.30 P.M. Special demonstration on Tues.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Demonstrations of Medical Ophthalmology (especially suitable for M.R.C.P. candidates), Wed., at 5 P.M. Mr. G. G. Penman on Fundi of Medical Interest. Thurs., at 8.30 P.M., Mr. C. L. Gimblett on Some Points in Medical Ophthalmology (illustrated by Epidiascope). These courses and demonstrations are open only to Members of the Fellowship of Medicine.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Dec. 5th.—10 A.M., Skin Department, Medical Wards. 11 A.M., Surgical Wards. 2 P.M., Medical, Surgical, Eye, and Gynæcological Out-patients. Operations. 4.15 P.M., Mr. Gibb: Demonstration of Eye Cases.

TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Demonstration. 2 P.M., Medical, Surgical, and Throat, Nose, and Ear Out-patients. Operations.

WEDNESDAY.—10 A.M., Medical Wards. Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 4.45 P.M., Venereal Diseases.

THURSDAY.—10 A.M., Neurological Out-patients. 11.30 A.M., Demonstration of Fractures. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 4.15 P.M., Lecture: Mr. Woodd Walker.

FRIDAY.—10 A.M., Skin Out-patients. 2 P.M., Medical, Surgical, Throat, Nose, and Ear Out-patients. Operations. 4.15 P.M., Dr. Archer: Biochemical Demonstration.

SATURDAY.—10 A.M., Medical and Surgical Wards. Surgical and Children's Medical Out-patients. The lectures at 4.15 P.M. are open to all Medical Practitioners without fee.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Dec. 5th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Symonds: The Sensory System.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Denny-Brown: Conditioned Reflexes.

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic. 3.30 P.M., Dr. Collier: Clinical Demonstration.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Collier: Confusion, Aphasia, Dementia.

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Symonds: The Sensory System.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Dec. 6th.—5 P.M., Dr. A. C. Roxburgh: Eruptions due to Physical Agents.

THURSDAY.—5 P.M., Pemphigus and Allied Eruptions.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Dec. 6th.—3.15 P.M., Mr. C. S. Lane-Roberts: Some Minor Gynæcological Conditions.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 9th.—4 P.M., Mr. A. Lowndes Yates: Acute Mastoiditis.

ST. PETER'S HOSPITAL FOR STONE, POST-GRADUATE COURSE, Henrietta-street, Covent Garden, W.C.
WEDNESDAY, Dec. 7th.—3 P.M., Mr. J. A. Andrews: Renal Tuberculosis.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL POST-GRADUATE SCHOOL.
WEDNESDAY, Dec. 7th.—4 P.M., Dr. Scott Pinchin: Observations on the Treatment of Diseases of the Lungs and Pleura (with slides).

ROYAL INSTITUTE OF PUBLIC HEALTH, Queen-square, W.C.
WEDNESDAY, Dec. 7th.—4 P.M., Sir Pendrill Varrier-Jones: Prevention of Tuberculosis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION. St. James's Hospital, Ouseley-road, Balham, S.W.
WEDNESDAY, Dec. 7th.—4 P.M., Mr. C. W. Flemming: Stiff and Painful Joints.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.
THURSDAY, Dec. 8th.—9 P.M., Mr. H. L. C. Wood: Injection Treatment of Varicose Veins and Hæmorrhoids.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Dec. 8th.—4.15 P.M., Dr. G. L. Langley: Treatment of Nephritis.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
TUESDAY, Dec. 6th.—3.30 P.M. (in the Faculty Hall, Vincent-street), Mr. J. Taylor: Tuberculosis of Bones and Joints.
WEDNESDAY.—4.15 P.M. (Victoria Infirmary), Dr. Ivy McKenzie: Medical Cases.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Dec. 6th.—4.15 P.M., Prof. F. E. Tylecote: Blood Pressure and the Climacteric.
FRIDAY.—4.15 P.M., Mr. F. G. Wrigley: Demonstration of Laryngological Cases.

Appointments

BANKS, Henry Stanley, M.D., Ch.B. Glasg., D.P.H. Camb., has been appointed Medical Superintendent at the Park Fever Hospital, Hither Green.

PEIRSON, T., M.D., Ch.B. Manch., D.P.H., Medical Officer of Health, Plymouth.

Births, Marriages, and Deaths

BIRTHS

COURTIN.—On Nov. 24th, at Bournemouth, the wife of Eric Courtin, M.R.C.S., L.R.C.P., of a son.

EGAN.—On Nov. 16th, at Bushwood, Birmingham, the wife of James L. Egan, M.R.C.S., L.R.C.P., of Corve-street, Ludlow, Shropshire, of a son.

HARVEY.—On Nov. 23rd, at Murrayfield, The Downsway, Sutton, Surrey, the wife of T. Blair Harvey, M.B., Ch.B., of a daughter.

SCOTT.—On Nov. 23rd, at Welbeck-street, W., the wife of Philip G. Scott, B.Ch., M.R.C.S., L.R.C.P., of Canfield-gardens, N.W., of a daughter.

MARRIAGES

IVE—DAVIDSON.—On Nov. 23rd, at Westminster Cathedral, Dr. Oliver Ive, to Isabel Dalrymple, daughter of the late Mr. and Mrs. Alexander Davidson, of Transvaal, South Africa.

LACKIE—EASTERBROOK.—On Nov. 24th, at St. Giles Cathedral, Edinburgh, David Glyn Lamond Lackie, B.A. Camb., M.B., F.R.C.S.E., to Ellen Annie (Nell), daughter of Dr. and Mrs. Charles Cromhall Easterbrook, Crichton House, Dumfries.

DEATHS

KELLY.—On Nov. 23rd, at Strathview, Friars Lane, Lanark, Scotland, Edward Henry Kelly, M.D., J.P., in his 84th year.

MCCOY.—On Nov. 25th, at Quex-road, Hampstead, Michael Joseph McCoy, L.R.C.P.I., L.M., L.R.C.S.I.

STEVENS.—On Nov. 26th, at George-place, Plympton, Charles Henry Stevens, M.D., F.R.C.S.

URE.—On Nov. 20th, at Glenair, Parkstone, Dorset, James Alexander Ure, M.B., C.M.

WILSON.—On Nov. 26th, suddenly, at Ferme Park-road, Hornsey, William Robert Wilson, F.R.C.S., L.R.C.P., &c.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NO. 14 STATIONARY HOSPITAL, B.E.F.—The annual dinner of the medical officers of this hospital will be held at the Trocadero Restaurant, London, W., on Friday, Dec. 9th, with Colonel C. R. Evans in the chair. Members of the mess who wish to attend should apply to the hon. secretaries, Lieut.-Colonel H. M. Perry and Dr. H. L. Tidy, 39, Devonshire-place, London, W. 1.

Notes, Comments, and Abstracts

WOMEN AND DENTISTRY

IN connexion with the decision of the Royal Dental Hospital of London to admit no more women students after May, 1933, the proportion of women to men among the new names placed on the dental register during the last few years is of interest. Excluding restorations to the register and Dentists, 1921 the total number of new names added from 1929 to 1932 were as follows: 1929, 249; 1930, 255; 1931, 253; 1932 (January to October inclusive), 192. For the three years 1929–31 the number of women registered each year varied between 20–26, giving an average proportion of between 1 in 10 and 1 in 13 of the male entry, and the proportion seems to be working out much the same for 1932. This quota, however, is made up of those who have taken dental degrees or diplomas at many centres, including Belfast, Birmingham, Bristol, Dublin, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle, St. Andrews, and Sheffield, as well as London. As far as can be ascertained no more than seven women took the same dental degree or diploma in any of the last four years. Two of the five dental schools in London—namely, those associated with University College Hospital and King's College Hospital—admit women students.

CAMPAIGNS AND GLACIERS

THE author of "Alps and Men" is no doubt telling a deeply rooted truth when he says[1] that two topics in particular have a special appeal to those who are interested in the Alps—the events of war and geology. His book is nominally an excerpt from forgotten diaries of travellers and tourists in Switzerland, but it is full of thrilling details of campaigns in the Alps from Hannibal to Suvorof, and of the stages by which conviction came to explorers that the glacier was just a plastic river of ice. Incidentally, the drawings by an unknown artist (ca. 1850) of glacier scenes would make a much less attractive book a joy to handle. Mr. de Beer has little to say that is directly medical, but he does record Victor Hugo's theory of cretinism. "The Alps," said Hugo, "produce numbers of idiots. It is not given to every intelligence to live with such marvels . . . from morning to night without becoming stupefied and dazed." And he tells us how winter sports began when Agassiz spent the winter of 1844 in a hut on the Aletsch glacier, and one of his guides had the idea of using a ladder as a sleigh; apparently however Montaigne had been before them when in travelling over the Mont Cenis from Piedmont into France he used a luge made of twigs, but thought the journey no more than a *plesant badinage*, devoid of *grand esperit*. He also tells how on May 20th, 1800, Napoleon on reaching the top of the Great St. Bernard pass in the wake of 35,000 men, who had dragged dismantled artillery up to the summit, demanded of the monks a copy of Livy in order to study the passage of the Alps by Hannibal, up till then the record-holder for this kind of exploit, at all events with elephants. The tourist in the central Alps could spend a wet day happily in the study of Suvorof's passage of the Panixer pass which with Thermopylæ was one of the most remarkable military exploits of any time.

[1] Alps and Men: Pages from forgotten diaries of Travellers and Tourists in Switzerland. By G. R. de Beer, author of "Early Travellers in the Alps." London: Edward Arnold and Co. 1932. Pp. 256. 16s.

FILMS IN FRENCH HOSPITALS.—A society has been formed in France with the title of "Le Cinema à l'Hôpital," to supply entertainment for hospital patients. A beginning has been made with the Saint Maurice Hospital, Paris, to which the first apparatus was handed over last week. The project is being supported by the whole of the French cinema industry.